

AP-42 Test Data - Submission Checklist		
FACILITY INFORMATION		
Landfill Name: Redwood Landfill		
Location: 8950 Redwood Highway, Novato, CA 94948		
Owner: Redwood Landfill, Inc.	LFG Operator: Waste Management	
Contact Person: Michael O'Connor	Address: 3843 Brickway Blvd, Ste, 208, Santa Rosa, CA	
Email: moconnor@scsengineers.com	Phone: 707-546-9461	Fax:
Year Opened:	Year Gas Collection Started:	
Gas Collection Control Device Description: LFG Flare		
Co disposal: ☐ Yes ☐ No ☒ Unknown		
ADMINISTRATIVE INFORMATION		
Complete test reports must be submitted (see footnote ¹)		
Sampling Date: 5/14/08	Analysis Date: 5/15/08	
Description of sampling site: LFG Flare		
Description of sampling method: Continuous emissions monitoring		
QA/QC data included: ☒ Yes ☐ No		
Chain of Custody included: ☒ Yes ☐ No		
DATA SUMMARY		
Type of Data: ☐ Header Draw ☐ Punch Probe (this data does not presently meet EPA requirements) ☒ Stack Test ☐ Other:		
Header Draw data:		Raw LFG Constituent data:
NMOC data:		☐ Yes
☐ Yes		☐ No
☐ No		Sulfur Compound data:
NMOC (ppm as hexane):		☐ Yes
		☐ No
NMOC Test Method:	LFG Test Methods:	
Stack Testing data:		
Device Tested (Flare , IC Engine, Turbine, Boiler):		
Concentration (ppm)		
NOx: 12.1 @15% O2	SOx: 22.5	
CO: 5.5 @15% O2	Dioxin/furans: NS	
PM: NA	Aldehydes/metals: NS	
Was sampling conducted after the control device? (Y/N): Y		
Test Methods: BAAQMD Methods ST-6, 13A, and 19A, ASTM D-5504.		

¹ According to USEPA, complete test reports should contain, at a minimum: Landfill name; physical description of the landfill, gas collection system and control device; description of sampling site and methods used to take samples; a sample matrix showing date of test and methods used for analysis; data results tables and discussion of results, identifying any data qualifiers or unusual circumstances affecting results; and QA/QC items such as field notes, laboratory notes, and a test QAPP or documentation of field and laboratory QA/QC procedures, including equipment calibrations and blank or spiked sample results.

Redwood Landfill, Inc

BAAQMD Facility # A1179

**Annual Compliance Emissions Test Report #08058
Source Test for Landfill Gas Flare- Source A-51**

Located at:

8950 Redwood Highway
Novato, CA 94948

Performed and Reported by:

Blue Sky Environmental, LLC
624 San Gabriel Avenue
Albany, CA 94706

Prepared For:

Cornerstone Environmental Group, LLC
7600 Dublin Boulevard, Suite 200
Dublin, CA 94568

For Submittal To:

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Testing Performed On:

May 14th, 2008

Final Report Submitted On:

June 25th, 2008

Draft
7-4-08

BLUE SKY ENVIRONMENTAL, LLC

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that: a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program; b) that the sampling and analytical procedures and data presented in the report is authentic and accurate; c) that all testing details and conclusions are accurate and valid, and; d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for Compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (510) 525 1261.

Guy Worthington
Principal Project Manager

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, LLC was contracted to perform the initial emissions testing on the A-51 Landfill Gas Flare at Redwood Landfill, 8950 Redwood Highway, Novato, California. Table 1 summarizes the source test information. Table 2 summarizes the results compared to the emission limits. The flare met all compliance emission criteria.

Table 1. Source Test Information

Test Location:	Redwood Landfill, 8950 Redwood Highway, Novato, California 94948 Mailing Address PO Box 793, Novato, CA 94948
Source Contact:	Alisha McCutchen (415) 892-2851
Source Tested:	Enclosed Landfill Gas Flare (A-51)
Source Test Date:	May 14 th , 2008
Test Objective:	Determine Compliance with Regulation 8, Rule 34 and Title V Permit A1179, Condition 19867
Test Performed By:	Blue Sky Environmental, LLC 624 San Gabriel Ave., Albany, CA 94706 Guy Worthington (510) 508 3469
Test Parameters:	Landfill Gas O ₂ , N ₂ , CO ₂ , BTU, THC, CH ₄ , NMOC, HHV, F-Factor, Sulfur & VOC Species, Volumetric Flow Rate Flare Emissions THC, CH ₄ , NMOC, NO _x , CO, O ₂ , SO ₂ , Volumetric Flow Rate, Temperature.

Table 2. Compliance Summary

	Average Test Result	Permit Limit	Compliance Status
NO _x , lbs/MMBTU	0.05	0.06	In Compliance
CO, lbs/MMBTU	0.01	0.20	In Compliance
NMOC, (ppmvd @ 3% O ₂ as CH ₄)	<28.6	30	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual performance test was conducted to demonstrate that the A-51 landfill gas flare is operating in accordance with the Bay Area Air Quality Management District (BAAQMD) Title V Permit A1179 and Regulation 8 Rule 34.

2.2. Pollutants Tested

The following BAAQMD, EPA and ASTM sampling and analytical methods were used:

BAAQMD ST-5	CO ₂
BAAQMD ST-6	CO
BAAQMD ST-7	NMOC
BAAQMD ST-13A	NO _x
BAAQMD ST-14	O ₂
BAAQMD ST-19A (calculated from TRS)	SO ₂ calculated from TRS
EPA 19	Flow Rate Calculation, DSCFM
EPA 25C	LFG Gas analysis for NMOC by GC
EPA TO-15	VOC Species
ASTM 1945/3588	LFG Gas analysis for BTU and F-factor
ASTM D-5504	Sulfur Species, H ₂ S and TRS

2.3. Test Date(s)

Testing was conducted on May 14th, 2008.

2.4. Sampling and Observing Personnel

Guy Worthington and Aiden Hammar representing Blue Sky Environmental, LLC, performed testing.

Steve Thexton of Cornerstone Environmental Group, LLC was present to operate and oversee the flare operation and assist in coordinating testing and the collection of process data during testing.

The BAAQMD was notified of the test in a plan submitted by Waste Management on April 30th, 2008. A Source Test Protocol acknowledgement was requested and received by Blue Sky Environmental (NST # 1395), but no agency observers were present to witness the testing. A copy of the source test protocol can be found in Appendix L.

2.5. Source/Process Description

The enclosed landfill gas flare consists of a 90 million British Thermal Units per hour (MMBtu/hr) multiple nozzle burner manufactured by Perennial Energy. The flare shell is approximately 45 feet high and has an approximately 136 inch inside diameter.

2.6. Source Operating Conditions

The flare operating temperature and the landfill gas flow rate records are contained in Appendix-F. There is no condensate injection.

The flare was operated between 1446 and 1489°F average temperature. The average landfill gas flow rate ranged between 2572 and 2610 scfm.

The landfill gas methane content ranged between 48.3 and 49.4%.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port location

The A-51 Flare sampling was conducted in the 136 inch diameter ID stack, via ports approximately 35' above grade, accessed by a 40' boom-lift. Two of the four, 4-inch flange ports are available ~4 stack diameters downstream from the burners and ~1 stack diameters upstream from the exit.

3.2. Point description/Labeling – ports/stack

Blue Sky Environmental conducted two perpendicular 8 pt traverses and found O₂ stratification about 10%, therefore subsequent CEM sampling was conducted at a representative average point in the stack.

3.3. Sample train description

Sampling system diagrams are included in the Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling procedure description

Three, 32-minute test runs were performed, completely traversing the stack on two diameters during each run.

Continuous Emission Monitoring by BAAQMD Methods ST-5, 6, 7, 13A and 14. These methods are all continuous monitoring techniques using instrumental analyzers to measure carbon dioxide (CO₂), carbon monoxide (CO), total non-methane hydrocarbons (THC & CH₄), nitrogen oxides (NO_x) and oxygen (O₂), respectively. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample and analyzing it by continuous monitoring gas analyzers in a CEM test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, glass moisture-knockout condensers in ice, Teflon sample transfer tubing, diaphragm pump and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI was provided to each analyzer to avoid pressure variable response differences. The entire sampling system was leak checked prior to and at the end of the sampling program.

Methane in the exhaust was determined per BAAQMD Methods, using a charcoal scrubber to remove the non-methane organics, and determining the difference between the total hydrocarbon and non-methane hydrocarbon concentrations.

The sampling and analytical system (per BAAQMD Methods) was calibrated at the beginning and end of each test run. The calibration gases were selected to fall approximately within 80 to 90 percent of the instrument range. Zero and calibration drift values were determined for each test. All calibration gases are EPA Protocol #1. The analyzer data recording system consists of Omega 3 channel strip chart recorders.

System Performance Criteria

Instrument Linearity	$\leq 2\%$ Full Scale (checked routinely)
Instrument Bias	$\leq 5\%$ Full Scale (checked routinely)
System Response Time	$\leq \pm 2$ minutes (checked routinely)
NO _x Converter Efficiency (EPA 20)	$\geq 90\%$ (checked routinely)
Instrument Zero Drift	$\leq \pm 3\%$ Full Scale (complied)
Instrument Span Drift	$\leq \pm 3\%$ Full Scale (complied)

Concurrent with the exhaust sampling, Blue Sky collected a total of three integrated 5-liter Tedlar Bag samples of the LFG for analysis. The samples were collected using Teflon tubing connections, and the tubing and the Tedlar bag were filled and purged prior to sampling. The gas sample was controlled with a rotameter to collect a 30-minute integrated sample. All the samples were analyzed for NMOC, HHV, F-Factor, Fixed Gases. One sample was analyzed for Sulfur Species (incl. H₂S and TRS) and VOC Compounds.

The inlet volumetric flow rate was continuously measured and recorded by the facility monitors.

3.5. Instrumentation and Analytical procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO 42i	NO _x	Chemiluminescence
TECO 48C	CO	GFC/IR
Ratfish, RS-55	THC	FID
Horiba PIR 2000	CO ₂	IR
Rosemount 755R	O ₂	Paramagnetic

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of Omega 3 channel strip chart recorders, which can be supported by a Data Acquisition System (DAS).

The instrument response was recorded on strip charts and manually reduced. The averages were corrected for drift using BAAQMD & EPA Method 6C equations.

3.6. Comments: Limitations and Data Qualifications

Blue Sky Environmental has reviewed this report for accuracy, and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

- Review of the general text
- Review of calculations
- Review of CEMS data
- Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

- A. Tabulated Results
- B. Calculations
- C. Laboratory Reports
- D. Field Data Sheets
- E. Strip Charts
- F. Process Information
- G. Calibration Certifications and Quality Assurance Records
- H. Sample Train Configuration and Stack Diagrams
- I. Related Correspondence (Source Test Plan)
- J. BAAQMD Permit

A
Tabulated Results

TABLE #1

Redwood Landfill

Flare A-51

1450°F

RUN	Run 1	Run 2	Run 3	AVERAGE	LIMITS
Test Date	5/14/08	5/14/08	5/14/08		
Test Time	0710-0758	0808-0846	0909-0947		
Standard Temp., °F	70	70	70		
Flare Temperature, °F	1,489	1,448	1,446	1,461	
Fuel Flow Rate, DSCFM	2,610	2,595	2,572	2,592	
Fuel Heat Input, MMBTU/Hr	75.1	76.4	75.1	75.6	
Exhaust Flow Rate, DSCFM (Method 19)	43,510	48,659	45,188	45,786	
Oxygen, O ₂ , %	15.1	15.7	15.4	15.4	
Carbon Dioxide, CO ₂ , %	4.9	4.7	4.8	4.8	
NO _x , ppm	11.5	10.9	11.4	11.3	
NO _x , ppm @ 15% O ₂	11.8	12.2	12.1	12.1	15
NO _x , lbs/hr	3.58	3.77	3.68	3.68	
NO _x , lbs/MMBTU	0.05	0.05	0.05	0.05	0.06
CO, ppm	6.0	5.9	3.5	5.1	
CO, ppm @ 15% O ₂	6.1	6.7	3.7	5.5	82
CO, lbs/hr	1.13	1.25	0.69	1.02	
CO, lbs/MMBTU	0.02	0.02	0.01	0.01	0.20
Total Reduced Sulfur as H ₂ S in fuel, ppm	396.4	396.4	396.4	396.4	1300
SO ₂ , ppm calculated emission	23.8	21.1	22.6	22.5	
THC, ppm	11.8	35.7	6.8	18.1	
THC, lbs/hr as CH ₄	1.27	4.31	0.76	2.12	
CH ₄ , ppm	11.8	14.3	6.8	11.0	
NMHC, ppm as CH ₄	<2.0	<21.4	<2.0	<8.5	
NMHC, lbs/hr as CH ₄	<0.2	<2.6	<0.2	<1.0	
NMHC, ppm @ 3% O ₂ as CH ₄	<6.2	<73.2	<6.5	<28.6	30
INLET NMHC ppm as CH ₄	619	502	511	544	
INLET NMHC lbs/hr as CH ₄	4.0	3.2	3.3	3.5	
NMHC Removal Efficiency	>94.6%	>20.1%	>93.1%	>69.3%	98
INLET CH ₄	483,000	494,000	490,000	489,000	
INLET THC (TOC) ppm as CH ₄	483,619	494,502	490,511	489,544	
INLET THC (TOC) lbs/hr as CH ₄	3,133	3,186	3,132	3,150	
THC (TOC) Removal Efficiency	99.96%	99.86%	99.98%	99.93%	98

WHERE,

ppm = Parts Per Million Concentration

lbs/hr = Pound Per Hour Emission Rate

Tstd. = Standard Temp. °R = 273+460

MW = Molecular Weight

DSCFM = Dry Standard Cubic Feet Per Minute

NO_x = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

TOC = THC = Total Organic Carbon as Methane including CH₄ (MW = 16)

THC = Total Hydrocarbons as Methane (MW = 16)

NMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)

SO₂ = Sulfur Dioxide as SO₂ (MW = 64.1)

CALCULATIONS,

PPM @ 15% O₂ = ppm * 5.9 / (20.9 - %O₂)PPM @ 3% O₂ = ppm * 17.9 / (20.9 - %O₂)

lbs/hr = ppm x 8.223 E-05 x DSCFM x MW / Tstd. °R

lbs/MMBTU = (lbs/hr)/(MMBTU/hr)

lbs/day = lbs/hr * 24

THC (TOC) Removal Efficiency = (inlet lbs/hr - outlet lbs/hr) / inlet lbs/hr

NMHC Removal Efficiency = (inlet lbs/hr - outlet lbs/hr) / inlet lbs/hr

SO₂ emission ppm = 1128 in fuel * Fuel Flow/Stack Gas Flow

TABLE # 2

Redwood Landfill
Flare A-51
Landfill Gas Characterization

RUN	1		LIMITS
Test Date	5/14/08		
Test Time	0930		
Average TNMHC as Hexane ppm	91		750
Acrylonitrile ppb	<100		280
Benzene ppb	366		340
Carbon Tetrachloride ppb	<50		70
Chlorobenzene ppb	<100		
Chlorodifluorobenzene ppb	<100		
Chloroethane ppb	<100		
Chloroform ppb	<50		70
1,1 Dichloroethane ppb	<100		150
1,1 Dichloroethene ppb	<100		
1,2 Dichloroethane (Ethylene Dichloride) ppb	50.4		70
1,4 Dichlorobenzene ppb	105		400
Dichlorodifluoromethane ppb	477		
Dichlorofluoromethane ppb	<100		
Ethylbenzene ppb	2,040		
Ethylene Dibromide 1,2 Dibromoethane ppb	<50		70
Fluorotrichloromethane Trichlorofluoromethane ppb	<100		
Hexane ppb	596		
Isopropyl Alcohol ppb	<100		
Methyl Ethyl Ketone ppb	1,100		
Methylene Chloride ppb	<100		320
Perchloroethylene Tetrachloroethylene ppb	<100		450
Toluene ppb	3,060		
1,1,1 Trichloroethane ppb	<100		
1,1,2,2 Tetrachloroethane ppb	<50		70
Trichloroethylene Trichloroethene ppb	<100		250
Vinyl Chloride ppb	392		880
Nylenes ppb	3,737		
Carbon Disulfide ppm	132		
Carbonyl Sulfide ppm	<0.01		
Dimethyl Sulfide ppm	0.06		
Ethyl Mercaptan ppm	0.13		
Hydrogen Sulfide ppm	394		1,300
Methyl Mercaptan ppm	0.21		

B Calculations

BLUE SKY ENVIRONMENTAL, LLC

CEM BIAS CORRECTION SUMMARY

Facility: Redwood Landfill
Unit: Flare A-51
Condition: 1450°F
Date: 05-14-08

Barometric:
Leak Check: OK
Strat. Check: OK
Personnel: gw, ah

	O ₂	CO ₂	NO _x	CO	THC	CH ₄	SO ₂		
Analyzer	755R	PIR 2000	42i	48C	RS-55	RS-55	721AT		
Range	25	15	25	25	100	100	100		r
Units, ppm or %	%	%	ppm	ppm	ppm	ppm	ppm		
Span Gas Value	20.57	12.64	22.5	22.7	84.6	84.6			Ccal

Run 1	0.00	0.00	0.00	0.3	-1.0	-1.0			zero (initial), C _b
Test Time:	20.88	12.68	22.5	21.3	84.3	84.3			cal (initial), C _b
0710-0758	15.31	4.94	11.5	5.8	11.3	11.3			TEST AVG, C _{avg}
	0.25	0.00	0.0	0.2	0.0	0.0			zero (final), C _b
	20.62	12.75	22.3	21.1	84.2	84.2			cal (final), C _b
	1%	0%	0%	0%	1%	1%			% zero drift
	-1%	0%	-1%	-1%	0%	0%			% cal drift
	15.14	4.91	11.5	6.0	11.8	11.8			C _{gas}

Run 2	0.25	0.00	0.0	0.2	0.0	0.0			zero (initial), C _b
Test Time:	20.62	12.75	22.3	21.1	84.2	84.2			cal (initial), C _b
0808-0846	15.70	4.73	10.7	5.6	36.3	15.1			TEST AVG, C _{avg}
	0.47	0.00	0.0	0.3	2.0	2.0			zero (final), C _b
	20.38	12.83	22.0	20.9	85.0	85.0			cal (final), C _b
	1%	0%	0%	0%	2%	2%			% zero drift
	-1%	1%	-1%	-1%	1%	1%			% cal drift
	15.67	4.67	10.9	5.9	35.7	14.3			C _{gas}

Run 3	0.47	0.00	0.0	0.3	2.0	2.0			zero (initial), C _b
Test Time:	20.38	12.83	22.0	20.9	85.0	85.0			cal (initial), C _b
0909-0947	15.25	4.91	11.1	3.4	7.8	7.8			TEST AVG, C _{avg}
	0.47	0.00	0.0	0.2	0.0	0.0			zero (final), C _b
	20.15	12.90	21.6	20.6	84.5	84.5			cal (final), C _b
	0%	0%	0%	0%	-2%	-2%			% zero drift
	-1%	0%	-1%	-1%	-1%	-1%			% cal drift
	15.36	4.82	11.4	3.5	6.8	6.8			C _{gas}

Pollutant Concentration (C_{gas}) = (C_{avg} - C_o) x C_{cal} / (C_{bcal} - C_o)
Zero and Calibration Drift = 100 x (C_b - C_b) / r

C_o = (C_{ib} + C_{fb}) / 2 for zero gas
C_{bcal} = (C_{if} + C_{fb}) / 2 for cal gas

STACK GAS FLOW RATE DETERMINATION -- Method 19

Facility: Redwood Landfill
Unit: Flare A-51
Condition: 1450°F
Date: 5/14/08

		Time: Run:	0710-0758 1	0808-0846 2	0909-0947 3	
# cubic feet/rev			2,610	2,595	2,572	ft ³
# of seconds/rev			60	60	60	seconds
Gas Line Pressure (PSIG)			0.0	0.0	0.0	PSI Gauge
Gas Line Pressure (PSIA)			14.7	14.7	14.7	PSI Absolute
Gross Calorific Value @ 60°F	avg		489.1	500.2	496.2	Btu / ft ³
Stack Oxygen			15.1	15.7	15.4	%
Gas Fd-Factor @ 60°F	avg		9,386.8	9,384.9	9,388.6	DSCF/MMBtu
Gas Temperature (°F)			70	70	70	°F
Standard Temperature (°F) Tstd			70	70	70	°F
Realtime Fuel Rate (CFM)			2610.0	2595.0	2572.0	CFM
Corrected Fuel Rate (SCFM) @ Tstd			2610.0	2595.0	2572.0	SCFM
Fuel Flowrate (SCFH)			156,600	155,700	154,320	SCFH
Million Btu per minute			1.252	1.274	1.252	MMBtu/min
Heat Input (MMBtu/hour)			75.1	76.4	75.1	MMBtu/Hr

Stack Gas Flow Rate @ Tstd	43,510	48,659	45,188	DSCFM
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WHERE:

Gas Fd-Factor = Fuel conversion factor (ratio of combustion gas volumes to heat inputs)
MMBtu = Million Btu

CALCULATIONS:

$$\begin{aligned} \text{SCFM} &= \text{CFM} * (460 + \text{Tstd}) * (\text{PSIA}) / 14.7 / (460 + \text{Gas } ^\circ\text{F}) \\ \text{SCFH} &= \text{SCFM} * 60 \\ \text{MMBtu/min} &= \text{SCFM} * (\text{Btu/ft}^3) * (520 / (460 + \text{Tstd})) / 1,000,000 \\ \text{MMBtu/hr Heat Input} &= \text{MMBtu/min} * 60 \\ \text{DSCFM} &= \text{Gas Fd-Factor} * ((460 + \text{Tstd}) / 520) * \text{MMBtu/min} * 20.9 / (20.9 - \text{O}_2\%) \end{aligned}$$

Sample ID: Redwood Landfill
Date: 5/14/2008

[illegible]

[†] *Chrysomelids of the subfamily Eurytominae* (Coleoptera: Chrysomelidae).

Calculated Specific Gravity (SG) = $\frac{\text{Total weight}}{\text{Volume}} = \frac{10.0 \text{ g}}{10.0 \text{ mL}} = 1.00 \text{ g/mL}$

$$Z = 1 + \left(\frac{A}{RT} \right) \left(\frac{1}{V} - \frac{1}{V_0} \right) + \left(\frac{B}{RT} \right) \left(\frac{1}{V} - \frac{1}{V_0} \right)^2 + \text{higher terms}$$

Specific Gravity (corrected)

Specific Volume, (SV) ft^3/lb

Gross Calorific Value (GCV) @ 60°F

Gross Calorific Value (GCV) @ 68°F

Gross Calorific Value (GCV)
 $H_{\text{GCV}} = H_{\text{HHV}} + 9H_2O$

Gas Fd-Factor ($\bar{a}$): 6891

Gas Fd-Factor ($\bar{\alpha}$, 60°F)

Sample ID: Redwood Landfill
Date: 5/14/2008

[illegible][†] Omitted from the sample: vehicles > price = 0, deviation.

Calculated Specific Gravity (SG) = $\frac{2.65 + (0.000154 \times \% \text{ water})}{1.000154}$

$$Z = 1 + (2.0 \times 10^{-4}) \times \Omega_{\text{eff}} + 3.4 \times 10^{-6} \Omega_{\text{eff}}^2$$

Specific Gravity (corrected)

Specific Volume, (SV) ft^3/lb

Gross Calorific Value (GCV) @ 60°F

Gross Calorific Value (GCV) @ 68°F

Gross Calorific Value (GCV)

$$E_{\text{eff}} = E_0 e^{2\pi z/\lambda} + z^2/2$$
Gas Fd-Factor (η : 68°F)[illegible]

Gas Fd-Factor @ 60°F

Sample ID: Rebreed Landfill
Date: 5/14/2008

[illegible]† Unrelated to the corresponding $\bar{F}$ from t , identical.

Calculated Specific Gravity (SG) : $SG = \frac{1}{2} \left(\frac{H_{10}}{H_0} + \frac{H_0}{H_{10}} \right)$

$$Z_{\text{calc}} = 2.8 \times 10^{-4} \times (2.5 \times 10^{-4})^{-0.5} = 1.2 \times 10^{-3}$$

Specific Gravity (corrected)

Specific Volume, (SV) ft³/lb

Gross Calorific Value (GCV) @ 60°F

Gross Calorific Value (GCV) (at 68°F)

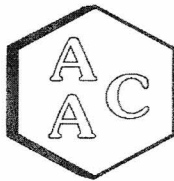
Gross Calorific Value (GCV)

$$R(\Sigma, \beta) = R(\Sigma, \beta) \otimes_{\mathbb{Z}} \mathbb{Z}[\beta^{-1}] \cong 0$$

Gas Fd-Factor (@ 68°F)

Gas Pd-Factor (α , 60°P)

C
Laboratory Reports



Atmospheric Analysis & Consulting, Inc.

CLIENT : Blue Sky Environmental, LLC
PROJECT NAME : Redwood
AAC PROJECT NO. : 080263
REPORT DATE : 05/19/2008

On May 15, 2008, Atmospheric Analysis & Consulting, Inc. received three (3) Tedlar Bags for analysis by ASTM D-1945 which includes: Fixed Gases analysis by EPA 3C and hydrocarbon analysis by EPA 18, and non-methane organic compounds analysis by EPA 25C. The third Tedlar Bag was also received for Total Reduced Sulfur analysis by ASTM D-5504. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.
A-51-LFG-1	080263-32719
A-51-LFG-2	080263-32720
A-51-LFG-3	080263-32721

EPA 3C - An aliquot of the gaseous sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

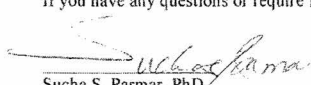
EPA 18 Analysis - Up to a 1 ml aliquot of samples is injected into the GC/FID for analysis following EPA 18 as specified in the SOW.

EPA 25C Analysis - Up to a 1 mL aliquot of samples is injected into the GC/FID/TCA for analysis following EPA 25C as specified in the SOW.

No problems were encountered during receiving, preparation, and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI- EPA 3C, 25C, EPA 18 and ASTM D-5504.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

If you have any questions or require further explanation of data results, please contact the undersigned.


Sucha S. Parmar, PhD
Technical Director

This report consists of 13 pages.





Atmospheric Analysis & Consulting, Inc.

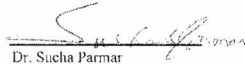
Laboratory Analysis Report

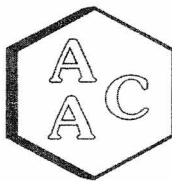
Client: Blue Sky Env
Project No. 080263
Matrix Air
Units %

Sampling Date 05/14/2008
Receiving Date 05/15/2008
Analysis Date 05/15/2008
Report Date 05/19/2008

EPA Method 3C

Detection Limit: 0.1 %			Analyte				
Client ID	AAC ID	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO2
A-51-LFG-1	080263-32719	<PQL	1.7	14.8	<PQL	48.3	35.2
A-51-LFG-2	080263-32720	<PQL	1.2	13.4	<PQL	49.4	36.1
A-51-LFG-3	080263-32721	<PQL	1.4	13.9	<PQL	49.0	35.7


Dr. Sucha Parmar
Technical Director



Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

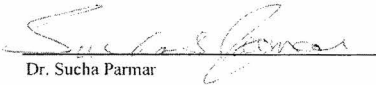
Client Blue Sky Env
Project No. 080263
Matrix AIR
Units ppmV

Sampling Date 05/14/2008
Receiving Date 05/15/2008
Analysis Date 05/15/2008
Report Date 05/19/2008

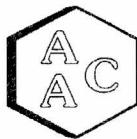
EPA Method 25C

Detection Limit:		1.0 ppmv
Client Sample ID	AAC ID	NMHC**
A-51-LFG-1	080263-32719	619
A-51-LFG-2	080263-32720	502
A-51-LFG-3	080263-32721	511

**Non-Methane Hydrocarbons as Methane


Dr. Sucha Parmar
Technical Director





Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT: Blue Sky Env
PROJECT NO. 080263
MATRIX AIR
UNITS ppmV

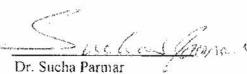
Sampling Date 05/14/2008
Receiving Date 05/15/2008
Analysis Date 05/15/2008
Report Date 05/19/2008

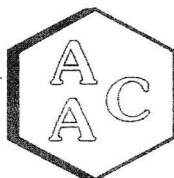
C1 to C6+ Hydrocarbons by EPA Method 18

Client ID	AAC ID	ANALYSIS METHOD		EPA Method 18				
		Detection Limit		0.3 ppmv				
		C1 *	C2 **	C3	C4	C5	C6	C6+
A-51-LFG-1	080263-32719	NA	<15	15.1	9.3	7.2	3.4	96.6
A-51-LFG-2	080263-32720	NA	<15	12.8	9.5	7.1	3.2	74.2
A-51-LFG-3	080263-32721	NA	<15	13.2	9.2	6.7	3.0	57.9

* C1 reported off of the EPA 3C report

** Due to the extremely high C1 concentration, the C2 concentration could not be measured below this PQL due to matrix interference.


Dr. Sucha Parmar
Technical Director



Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

Client
Project No.
Matrix
Units

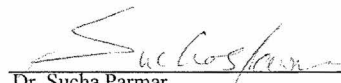
Blue Sky Env
080149
Air
ppmV

SAMPLING DATE 05/14/2008
RECEIVING DATE 05/15/2008
ANALYSIS DATE 05/15/2008
REPORT DATE 05/19/2008

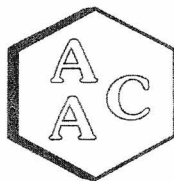
Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID.	A-51-LFG-3	PQL
AAC ID	080263-32721	
Analysis Dilution Factor	10, 100, 5K, 10K	
Can Dilution Factor	NA	
H ₂ S	394.2	0.01
Carbonyl Sulfide	<PQL	0.01
SO ₂	<PQL	0.01
Methyl Mercaptan	0.21	0.01
Ethyl Mercaptan	0.13	0.01
Dimethyl Sulfide	0.06	0.01
n-Butyl mercaptan	<PQL	0.01
Carbon Disulfide	0.06	0.01
Allyl Sulfide	<PQL	0.01
Propyl Sulfide	<PQL	0.01
Allyl disulfide	<PQL	0.01
Isopropyl Mercaptan	0.77	0.01
t-Butyl mercaptan	0.06	0.01
Propyl Mercaptan	<PQL	0.01
Butyl Sulfide	0.08	0.01
Ethyl methyl sulfide	<PQL	0.01
Thiophene	<PQL	0.01
Isobutyl mercaptan	<PQL	0.01
Dimethyl disulfide	0.09	0.01
Allyl mercaptan	<PQL	0.01
3-Methylthiophene	<PQL	0.01
Tetrahydrothiophene	0.02	0.01
Diethyl sulfide	<PQL	0.01
2-Ethylthiophene	<PQL	0.01
2,5-Dimethylthiophene	<PQL	0.01
Diethyl disulfide	<PQL	0.01
Total Unidentified Sulfurs as H ₂ S	0.70	0.01
Total Sulfurs as H ₂ S	396.4	0.01

All compounds concentrations expressed in terms of H₂S.


Dr. Sucha Parmar
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 5/15/2008
Analyst: DN

Instrument ID: TCD#1
Units: %

I- Method Blank-EPA Method 3C

AAC ID	Analyte	MB Concentration
Method Blank	Hydrogen	ND
	Oxygen	ND
	Nitrogen	ND
	CO	ND
	Methane	ND
	CO2	ND

II-Laboratory Control Spike & Duplicate - EPA Method 3C

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
Lab Control Standards	Hydrogen	20.0	20.6	20.6	103	103	0.1
	Nitrogen	20.0	19.6	19.5	98	98	0.2
	CO	20.0	19.9	19.8	100	99	0.6
	Methane	20.0	19.9	20.1	100	100	0.7
	CO2	20.0	20.0	20.0	100	100	0.1

III - Duplicate Analysis - EPA Method 3C

AAC ID	Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
080263-32719	Hydrogen	0.00	0.00	0.0	0.0
	Oxygen	1.65	1.67	1.7	1.2
	Nitrogen	14.57	14.63	14.6	0.4
	CO	0.00	0.00	0.0	0.0
	Methane	47.73	47.67	47.7	0.1
	CO2	34.84	34.77	34.8	0.2

IV-Matrix Spike & Duplicate- EPA Method 3C

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
080263-32719	Hydrogen	0.00	10.0	8.79	8.7	88	87	1.2
	Nitrogen	7.30	10.0	16.30	16.4	90	91	1.6
	CO	0.00	10.0	9.48	9.5	95	95	0.2
	Methane	23.85	10.0	34.63	34.9	108	110	2.0
	CO2	17.40	10.0	27.74	27.8	103	104	0.3

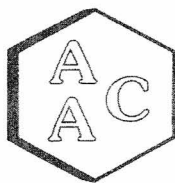
* Must be 85-115%

** Must be 75-125%

*** Must be < 25%

Sucha Parmar, Ph.D.
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 5/15/2008

Instrument ID: TCD#1

Analyst: DN

Calb Date: 04/03/08

Opening Calibration Verification Standard

Analyte	xLR**	LR	%RPD*
Hydrogen	1869	1924	2.9
Oxygen***	49346	49164	0.4
Nitrogen	59197	58025	2.0
Carbon Monoxide	57917	57635	0.5
Methane	48425	48146	0.6
Carbon Dioxide	77691	77504	0.2

Closing Calibration Verification Standard

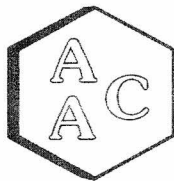
Analyte	xLR**	LR	%RPD*
Hydrogen	1869	1941	3.8
Nitrogen	59197	58852	0.6
Carbon Monoxide	57917	58457	0.9
Methane	48425	48863	0.9
Carbon Dioxide	77691	78675	1.3

* Must be <15%

** Linear Response Factor from Initial Calibration Curve

*** Oxygen from Lab Air





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 05/15/2008
Analyst: DN

Instrument ID: SCD#2
Units: PPMV

I - Method Blank - ASTM D-5504

AAC ID	Analyte	MB Conc.
Method Blank	H2S	ND

II-Laboratory Control Spike & Duplicate - ASTM D-5504

Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
H2S	0.050	0.049	0.049	98.0	98.0	0.0

III-Matrix Spike & Duplicate - ASTM D-5504

Sample ID 080263-32721(x20K)

Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
H2S	0.020	0.025	0.047	0.049	108	115	3.6

IV - Duplicate Analysis - ASTM D-5504

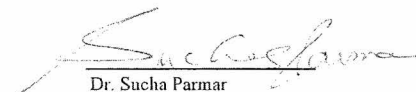
Sample ID 080263-32721

Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
H2S	394.2	403.4	398.8	2.3

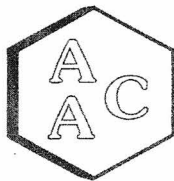
* Must be 90-110%

** Must be 85-115%

*** Must be < 10%


Dr. Sucha Parmar
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 5/15/2008
Analyst: DN
Calibration Date: 5/14/2008

Instrument ID: SCD#2
Units: PPMV

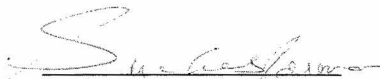
Opening Calibration Verification Standards

Analyte	Std. Conc.	Result	%Recovery*
H2S	0.050	0.050	100

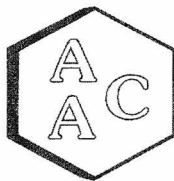
Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery*
H2S	0.050	0.048	96

* Must be 90-110%


Dr. Sucha Parmar
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 5/15/2008
Analyst: DN

Instrument ID: FID#3
Units: PPMV

I - Method Blank-EPA Method 18

AAC ID	Analyte	MB Concentration
Method Blank	Methane	ND
	Ethane	ND
	Propane	ND
	Butane	ND
	Pentane	ND
	Hexane	ND

II-Laboratory Control Spike & Duplicate - EPA Method 18

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
Lab Control Standards	Methane	100.4	102.1	98.6	101.7	98.2	3.5
	Ethane	100.2	101.7	101.1	101.5	100.9	0.6
	Propane	100.2	101.3	100.1	101.0	99.9	1.2
	Butane	100.4	104.0	100.9	103.6	100.5	3.1
	Pentane	100.0	104.6	102.0	104.6	102.0	2.5
	Hexane	99.4	100.5	101.1	101.1	101.7	0.6

III - Duplicate Analysis - EPA Method 18

AAC ID	Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
080263-32721 (x500)	Methane	664009	685562.0	674785.6	3.2
	Ethane	0.00	0.00	0.0	0.0
	Propane	0.00	0.00	0.0	0.0
	Butane	0.00	0.0	0.0	0.0
	Pentane	0.00	0.00	0.0	0.0
	Hexane	0.00	0.00	0.0	0.0

IV-Matrix Spike & Duplicate- EPA Method 18

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
080263-32721 (x2000)	Methane	337.4	250.0	607.9	609.0	108	109	0.4
	Ethane	0.0	250.0	261.9	259.2	105	104	1.0
	Propane	0.0	250.0	254.0	256.8	102	103	1.1
	Butane	0.0	250.0	256.3	259.0	103	104	1.0
	Pentane	0.0	250.0	256.9	259.2	103	104	0.9
	Hexane	0.0	250.0	253.6	257.7	101	103	1.6

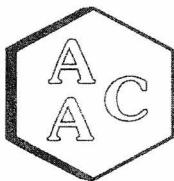
* Must be 85-115%

** Must be 75-125%

*** Must be < 25%

Dr. Sucha Parmar
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 5/15/2008

Instrument ID: FID#3

Analyst: DN

Calibration Date: 04/18/2008

Opening Calibration Verification Standard

Analyte	xCF**	CF	%RPD*
C1	671	683	1.7
C2	1308	1348	3.0
C3	2018	2052	1.7
C4	2610	2695	3.2
C5	3155	3300	4.5
C6	3632	3792	4.3

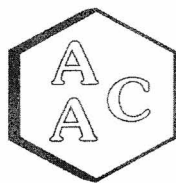
Closing Calibration Verification Standard

Analyte	xCF**	CF	%RPD*
C1	671	677	0.9
C2	1308	1335	2.1
C3	2018	2037	1.0
C4	2610	2685	2.8
C5	3155	3288	4.1
C6	3632	3812	4.8

* Must be <15%

** Average Calibration Factor from Initial Calibration Curve





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Analysis Date: 5/15/2008
Analyst: TT
Units: ppmv

Instrument ID: FID#9
Calibration Date: 1/18/2008

I - Opening Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	11101	5.4
CH4	11996	11813	1.5
CO2	11842	11061	6.8
Propane	33025	30902	6.6

II - Method Blank - Method 25C

AAC ID	Analyte	Sample Result
MB	NMEHC	ND

III - Laboratory Control Spike & Duplicate - Method 25C

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec **	LCSD % Rec **	% RPD***
LCS/LCSD	NMEHC	50.0	49.1	51.7	98.1	103.4	5.2

IV - Closing Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
CO	11713	11098	5.4
CH4	11996	12527	4.3
CO2	11842	11580	2.2
Propane	33025	31612	4.4

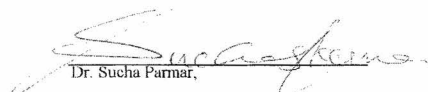
xCF - Average Calibration Factor from Initial Calibration Curve

dCF - Daily Calibration Factor

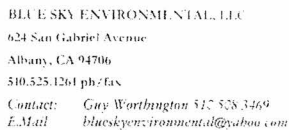
* Must be <15%

** Must be 90-110 %

*** Must be <20%


Dr. Sucha Parmar,
Technical Director





Page 11

ph/fax
Cont:0

080263

CHAIN OF CUSTODY RECORD

Project Name: REDWOOD

Project #:

SAMPLE Date	SAMPLE Time	Sample ID (Method-Run-Fraction)
5/14/08		A-51-LFG-
↓	0930	A-51-LFG-2
		A-51-LFG-3

Analysis Requested

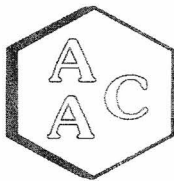
[illegible]

All samples submitted to laboratories for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the sample. Samples should be held for 90+ days. The laboratory reserves the right to return unused sample portions.

COMMENTS:

24hr holding on A-Si

Relinquished by: <i>Marking</i>	Date: 5-14-08	Time: 5:00	Received by:	Date: 5-14-08	Time: 5:00
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date: 5/14/08	Time: 7:30



Atmospheric Analysis & Consulting, Inc.

CLIENT : Blue Sky Environmental, LLC
PROJECT NAME : Redwood
AAC PROJECT NO. : 080263
REPORT DATE : 05/16/2008

On May 15, 2008, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for Volatile Organic Compounds analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab No.
A-51-LFG-3	080263-32721

TO-15 Analysis - Up to a 500 ml aliquot of sample is concentrated, put through a water and CO₂ management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-15 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-TO-15. Estimated uncertainty of the test results will be provided upon request.

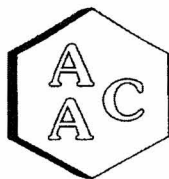
I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.


Sucha S. Parmar, PhD
Technical Director

This report consists of 11 pages.





Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

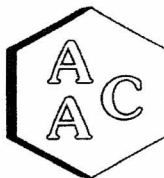
CLIENT : Blue Sky Environmental, LLC
 PROJECT NO : 080263
 MATRIX : AIR
 UNITS : PPB (v/v)

DATE RECEIVED : 05/15/2008
 DATE REPORTED : 05/16/2008

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A-51-LFG-3			Sample Reporting Limit (RLXDF's)	Method Reporting Limit
AAC ID	080263-32721				
Date Sampled	5/14/2008				
Date Analyzed	5/15/2008				
Can Dilution Factor	1.00				
	Result	Qualifier	Dil. Fac.		
Chlorodifluoromethane	484		100	100	1.0
Propylene	4270		100	100	1.0
Dichlorodifluoromethane	477		100	100	1.0
Chloromethane	ND	U	100	100	1.0
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	ND	U	100	100	1.0
Vinyl Chloride	392		100	100	1.0
Methanol	ND	U	100	500	5.0
1,3-Butadiene	ND	U	100	100	1.0
Bromomethane	ND	U	100	100	1.0
Chloroethane	110	!!	100	100	1.0
Dichlorofluoromethane	ND	U	100	100	1.0
Ethanol	1740		100	200	2.0
Vinyl Bromide	ND	U	100	100	1.0
Acetone	ND	U	100	200	2.0
Trichlorofluoromethane	ND	U	100	100	1.0
Isopropyl Alcohol	ND	U	100	200	2.0
Acrylonitrile	ND	U	100	100	1.0
1,1-Dichloroethylene	ND	U	100	100	1.0
Methylene Chloride	ND	U	100	100	1.0
Allyl Chloride (Chloroprene)	ND	U	100	100	1.0
Carbon Disulfide	994		100	100	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	100	100	1.0
1,1,2-Dichloroethylene	ND	U	100	100	1.0
1,1-Dichloroethane	ND	U	100	100	1.0
MTBE	ND	U	100	100	1.0
Vinyl Acetate	ND	U	100	100	1.0
2-Butanone (MEK)	1100		100	100	1.0
cis-1,2-Dichloroethene	158		100	100	1.0
Hexane	596		100	100	1.0
Chloroform	ND	U	100	50	0.5
Ethyl Acetate	265		100	100	1.0
Tetrahydrofuran	1820		100	100	1.0
1,2-Dichloroethane	50.4		100	50	0.5
1,1,1-Trichloroethane	ND	U	100	100	1.0





Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Blue Sky Environmental, LLC
PROJECT NO : 080263
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 05/15/2008
DATE REPORTED : 05/16/2008

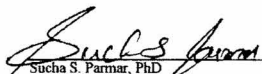
VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A-51-LFG-3			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	080263-32721				
Date Sampled	5/14/2008				
Date Analyzed	5/15/2008				
Can Dilution Factor	1.00				
	Result	Qualifier	Dil. Fac.		
Benzene	366		100	100	1.0
Carbon Tetrachloride	ND	U	100	50	0.5
Cyclohexane	401		100	100	1.0
1,2-Dichloropropane	ND	U	100	100	1.0
Bromodichloromethane	ND	U	100	100	1.0
1,4-Dioxane	ND	U	100	100	1.0
Trichloroethene	ND	U	100	100	1.0
2,2,4-Trimethylpentane	186		100	100	1.0
Heptane	676		100	100	1.0
cis-1,3-Dichloropropene	ND	U	100	100	1.0
4-Methyl-2-Pentanone (MIBK)	ND	U	100	100	1.0
1,1,3-Dichloropropene	ND	U	100	100	1.0
1,1,2-Trichloroethane	ND	U	100	100	1.0
Toluene	3060		100	100	1.0
2-Hexanone	ND	U	100	100	1.0
Dibromochloromethane	ND	U	100	100	1.0
1,2-Dibromoethane	ND	U	100	50	0.5
Tetrachloroethylene	ND	U	100	100	1.0
Chlorobenzene	ND	U	100	100	1.0
Ethylbenzene	2040		100	100	1.0
m- & p-Xylenes	2770		100	200	2.0
Bromoform	ND	U	100	300	3.0
Styrene	ND	U	100	100	1.0
1,1,2,2-Tetrachloroethane	ND	U	100	50	0.5
o-Xylene	967		100	100	1.0
4-Ethyltoluene	124		100	100	1.0
1,3,5-Trimethylbenzene	184		100	100	1.0
1,2,4-Trimethylbenzene	336		100	100	1.0
Benzyl Chloride	ND	U	100	500	5.0
1,3-Dichlorobenzene	ND	U	100	100	1.0
1,4-Dichlorobenzene	105		100	100	1.0
1,2-Dichlorobenzene	ND	U	100	100	1.0
1,2,4-Trichlorobenzene	ND	U	100	100	1.0
Hexachlorobutadiene	ND	U	100	100	1.0
BFB Surrogate Std. % Recovery	97%			70-130%	

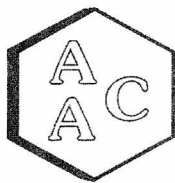
U - Compound was analyzed for, but was not detected.

!! - Estimated results, Recovery was high on CCV, detectable but not quantifiable.

* As per client's request, some compounds reported to PQL.


Sucha S. Parmar, PhD
Technical Director





Atmospheric Analysis & Consulting, Inc.

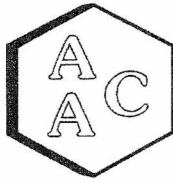
ANALYSIS DATE : 05/15/08
ANALYST : JIG / KP

INSTRUMENT ID : GC/MS-03
STD ID : PS050208-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15 Continuing Calibration Verification of the 04/17/08 Calibration

Compounds	Conc	Daily Conc	%REC
4-BFB (surrogate standard)***	10	9.48	95
Chlorodifluoromethane*	10	10.57	106
Propylene*	10	9.77	98
DiChloromethane*	10	10.92	109
CHLOROMETHANE*	10	10.35	104
1,2 DiCl-1,1,2,2-TetraFluorethane*	10	11.78	118
VINYL CHLORIDE*	10	11.56	116
Methanol*	10	11.13	111
1,3-Butadiene*	10	11.03	110
BROMOMETHANE*	10	11.24	112
CHLOROETHANE*	10	14.79	148
Dichlorofluoromethane*	10	11.72	117
Ethanol*	10	11.01	110
Vinyl Bromide*	10	11.97	120
Acetone*	10	10.91	109
TRICHLOROFLUOROMETHANE*	10	10.69	107
Isopropanol*	10	11.13	111
Acrylonitrile*	10	11.23	112
1,1 DICHLOROETHENE*	10	10.71	107
METHYLENE CHLORIDE*	10	9.26	93
Allyl CHLORIDE*	10	11.70	117
Carbon disulfide*	10	11.70	117
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	10	11.68	117
trans-1,2- DICHLOROETHYLENE*	10	12.11	121
1,1- DICHLOROETHANE*	10	12.35	124
MTBE*	10	12.02	120
Vinyl Acetate*	10	11.23	112
MEK*	10	10.82	108
cis-1,2- DICHLOROETHYLENE*	10	11.82	118
Hexane*	10	11.36	114
CHLOROFORM*	10	11.53	115
Ethyl Acetate*	10	12.62	126
Tetrahydrofuran*	10	11.19	112
1,2-DICHLOROETHANE*	10	10.75	108
1,1,1-TRICHLOROETHANE*	10	11.29	113





Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 05/15/08
ANALYST : JIG / KP

INSTRUMENT ID : GC/MS-03
STD ID : PS050208-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15 Continuing Calibration Verification of the 04/17/08 Calibration

Compounds	Conc	Daily Conc	%REC
BENZENE**	10	10.41	104
CARBON TETRACHLORIDE**	10	9.23	92
Cyclohexane**	10	9.94	99
1,2-DICHLOROPROPANE**	10	10.47	105
Bromodichloromethane**	10	9.26	93
1,4-Dioxane**	10	9.92	99
TRICHLOROETHENE**	10	9.61	96
2,2,4-Trimethylpentane**	10	9.02	90
Heptane**	10	8.58	86
cis- 1,3 DICHLOROPROPENE**	10	10.69	107
MIBK**	10	9.13	91
trans 1,3 DICHLOROPROPENE**	10	10.92	109
1,1,2-TRICHLOROETHANE**	10	10.52	105
TOLUENE**	10	10.46	105
2-Hexanone**	10	9.32	93
Dibromochloromethane**	10	10.23	102
1,2 DIBROMOETHANE**	10	10.61	106
TETRACHLOROETHYLENE**	10	10.23	102
CHLORO BENZENE***	10	10.25	103
ETHYL BENZENE***	10	10.32	103
m-, & p- XYLENES***	20	20.40	102
Bromoform***	10	10.81	108
STYRENE***	10	11.43	114
1,1,2,2- TETRACHLOROETHANE**	10	9.72	97
o- XYLENE***	10	9.62	96
Ethyltoluene***	10	10.96	110
1,3,5- TRIMETHYLBENZENE***	10	9.57	96
1,2,4- TRIMETHYLBENZENE***	10	9.97	100
Benzyl Chloride***	10	9.62	96
1,3- DICHLOROBENZENE***	10	10.38	104
1,4- DICHLOROBENZENE***	10	9.61	96
1,2-DICHLOROBENZENE***	10	10.09	101
1,2,4-TRICHLOROBENZENE***	10	9.83	98
HEXACHLOROBUTADIENE***	10	9.70	97

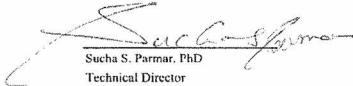
* Internal std calculation IS1 : Bromochloromethane

** Internal std calculation IS2 : 1,4-Difluorobenzene

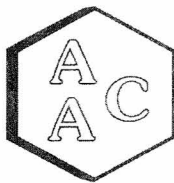
*** Internal std calculation IS3 : Chlorobenzene-d5

%REC should be 70-130%

!! Compound failed criteria and results should be considered estimated.


Sucha S. Parmar, PhD
Technical Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

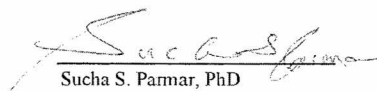
CLIENT ID : Laboratory Control Spike DATE ANALYZED : 05/15/08
AAC ID : LCS/LCSD DATE REPORTED : 05/15/08
MEDIA : Air UNITS : ppbv

TO-15 Laboratory Control Spike Recovery

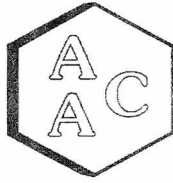
Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-DICHLOROETHYLENE	0.0	10.00	10.71	10.83	107	108	1.1
METHYLENE CHLORIDE	0.0	10.00	9.26	9.31	93	93	0.5
BENZENE	0.0	10.00	10.41	10.52	104	105	1.1
TRICHLOROETHENE	0.0	10.00	9.61	9.72	96	97	1.1
TOLUENE	0.0	10.00	10.46	10.56	105	106	1.0
TETRACHLOROETHYLENE	0.0	10.00	10.23	10.34	102	103	1.1
CHLOROBENZENE	0.0	10.00	10.25	10.47	102	105	2.1
ETHYLBENZENE	0.0	10.00	10.32	10.49	103	105	1.6
m-, & p- XYLENES	0.0	20.00	20.40	20.67	102	103	1.3
o- XYLENE	0.0	10.00	9.62	9.70	96	97	0.8

* Must be 70-130%

** Must be < 25%


Sucha S. Parmar, PhD
Technical Director





Atmospheric Analysis & Consulting, Inc.

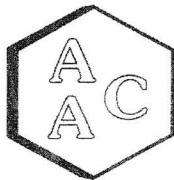
Method Blank Analysis Report

MATRIX : AIR ANALYSIS DATE : 05/15/08
UNITS : ppbv REPORT DATE : 05/15/08

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID AAC ID	Method Blank MB 051508	RL
Chlorodifluoromethane*	<RL	1.0
Propylene*	<RL	1.0
DICIDIFMethane*	<RL	1.0
CHLOROMETHANE*	<RL	1.0
1,2 DiCl-1,1,2,2-TetraFEthane*	<RL	1.0
VINYL CHLORIDE*	<RL	1.0
Methanol*	<RL	5.0
1,3-Butadiene*	<RL	1.0
BROMOMETHANE*	<RL	1.0
CHLOROETHANE*	<RL	1.0
Dichlorofluoromethane	<RL	1.0
Ethanol*	<RL	2.0
Vinyl Bromide*	<RL	1.0
Acetone*	<RL	2.0
TRICHLOROFLUOROMETHANE*	<RL	1.0
Isopropyl Alcohol*	<RL	2.0
Acrylonitrile*	<RL	1.0
1,1 DICHLOROETHENE*	<RL	1.0
METHYLENE CHLORIDE*	<RL	1.0
Allyl CHLORIDE*	<RL	1.0
Carbon disulfide*	<RL	1.0
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	<RL	1.0
trans-1,2- DICHLOROETHYLENE*	<RL	1.0
1,1- DICHLOROETHANE*	<RL	1.0
MTBE*	<RL	1.0
Vinyl Acetate*	<RL	1.0
MEK*	<RL	1.0
cis-1,2- DICHLOROETHYLENE*	<RL	1.0
Hexane*	<RL	1.0
CHLOROFORM*	<RL	1.0
Ethyl Acetate*	<RL	1.0
Tetrahydrofuran*	<RL	1.0
1,2-DICHLOROETHANE*	<RL	1.0
1,1,1-TRICHLOROETHANE*	<RL	1.0
BENZENE**	<RL	1.0
CARBON TETRACHLORIDE**	<RL	1.0
Cyclohexane**	<RL	1.0
1,2-DICHLOROPROPANE**	<RL	1.0
Bromodichloromethane**	<RL	1.0
1,4-Dioxane**	<RL	1.0
TRICHLOROETHENE**	<RL	1.0
2,2,4-Trimethylpentane**	<RL	1.0
Heptane**	<RL	1.0





Atmospheric Analysis & Consulting, Inc.

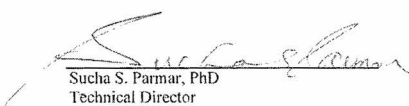
Method Blank Analysis Report

MATRIX : AIR ANALYSIS DATE : 05/15/08
UNITS : ppbv REPORT DATE : 05/15/08

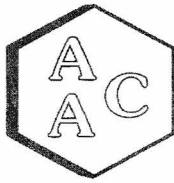
VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	Method Blank	RL
AAC ID	MB 051508	
cis- 1,3 DICHLOROPROPENE**	<RL	1.0
MIBK**	<RL	1.0
trans 1,3 DICHLOROPROPENE**	<RL	1.0
1,1,2-TRICHLOROETHANE**	<RL	1.0
TOLUENE**	<RL	1.0
2-Hexanone**	<RL	1.0
Dibromochloromethane**	<RL	1.0
1,2 DIBROMOETHANE**	<RL	1.0
TETRACHLOROETHYLENE**	<RL	1.0
CHLOROBENZENE***	<RL	1.0
ETHYLBENZENE***	<RL	1.0
m-, & p- XYLENES***	<RL	2.0
Bromoform***	<RL	3.0
STYRENE***	<RL	1.0
1,1,2,2- TETRACHLOROETHANE***	<RL	1.0
o- XYLENE***	<RL	1.0
Ethyltoluene***	<RL	1.0
1,3,5- TRIMETHYLBENZENE***	<RL	1.0
1,2,4- TRIMETHYLBENZENE***	<RL	1.0
Benzyl Chloride***	<RL	5.0
1,3- DICHLOROBENZENE***	<RL	1.0
1,4- DICHLOROBENZENE***	<RL	1.0
1,2-DICHLOROBENZENE***	<RL	1.0
1,2,4 TRICHLOROBENZENE***	<RL	1.0
HEXACHLOROBUTADIENE***	<RL	1.0
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	94%	--

RL - Reporting Limit


Sucha S. Parmar, PhD
Technical Director





Atmospheric Analysis & Consulting, Inc.

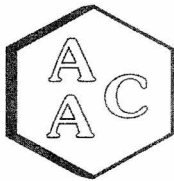
Quality Control/Quality Assurance Report

AAC ID : 080263-32721 DATE ANALYZED : 05/15/08
 MATRIX : Air DATE REPORTED : 05/15/08
 UNITS : ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane*	484	465	4.0
Propylene*	4270	4360	2.1
Dichloromethane*	477	457	4.3
CHLOROMETHANE*	<RL	<RL	0.0
1,2-Dichloro-1,1,2,2-Tetrafluoroethane*	<RL	<RL	0.0
VINYL CHLORIDE*	392	372	5.2
Methanol*	<RL	<RL	0.0
1,3-Butadiene*	<RL	<RL	0.0
BROMOMETHANE*	<RL	<RL	0.0
CHLOROETHANE*	110	116	5.3
Dichlorofluoromethane	<RL	<RL	0.0
Ethanol*	1740	1710	1.7
Vinyl Bromide*	<RL	<RL	0.0
Acetone*	<RL	<RL	0.0
TRICHLOROFLUOROMETHANE*	<RL	<RL	0.0
Isopropyl Alcohol*	<RL	<RL	0.0
Acrylonitrile*	<RL	<RL	0.0
1,1-DICHLOROETHENE*	<RL	<RL	0.0
METHYLENE CHLORIDE*	<RL	<RL	0.0
Allyl CHLORIDE*	<RL	<RL	0.0
Carbon disulfide*	994	890	11.0
1,1,2-TRICHLORO-1,1,2,2-TRIFLUOROETHANE*	<RL	<RL	0.0
trans-1,2-DICHLOROETHYLENE*	<RL	<RL	0.0
1,1-DICHLOROETHANE*	<RL	<RL	0.0
MTBE*	<RL	<RL	0.0
Vinyl Acetate*	<RL	<RL	0.0
MEK*	1100	1100	0.0
cis-1,2-DICHLOROETHYLENE*	158	158	0.0
Hexane*	596	593	0.5
CHLOROFORM*	<RL	<RL	0.0
Ethyl Acetate*	265	263	0.8
Tetrahydrofuran*	1820	1820	0.0
1,2-DICHLOROETHANE*	<RL	<RL	0.0
1,1,1-TRICHLOROETHANE*	<RL	<RL	0.0
BENZENE*	366	364	0.5
CARBON TETRACHLORIDE**	<RL	<RL	0.0





Atmospheric Analysis & Consulting, Inc.

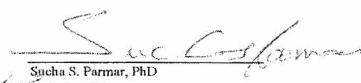
Quality Control/Quality Assurance Report

AAC ID : 080263-32721 DATE ANALYZED : 05/15/08
MATRIX : Air DATE REPORTED : 05/15/08
UNITS : ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane**	401	398	0.8
1,2-DICHLOROPROPANE**	<RL	<RL	0.0
Bromodichloromethane**	<RL	<RL	0.0
1,4-Dioxane**	<RL	<RL	0.0
TRICHLOROETHENE**	<RL	<RL	0.0
2,2,4-Trimethylpentane**	186	184	1.1
Heptane**	676	667	1.3
cis- 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
MIBK**	<RL	<RL	0.0
trans 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
1,1,2-TRICHLOROETHANE**	<RL	<RL	0.0
TOLUENE**	3060	3030	1.0
2-Hexanone**	<RL	<RL	0.0
Dibromochloromethane**	<RL	<RL	0.0
1,2 DIBROMOETHANE**	<RL	<RL	0.0
TETRACHLOROETHYLENE**	<RL	<RL	0.0
CHLOROBENZENE**	<RL	<RL	0.0
ETHYLBENZENE***	2040	2020	1.0
m- & p- XYLENES***	2770	2750	0.7
Bromoform***	<RL	<RL	0.0
STYRENE***	<RL	<RL	0.0
1,1,2,2-TETRACHLOROETHANE***	<RL	<RL	0.0
o- XYLENE***	967	954	1.4
Bibyltoluene***	124	126	1.6
1,3,5- TRIMETHYLBENZENE***	184	186	1.1
1,2,4- TRIMETHYLBENZENE***	336	340	1.2
Benzyl Chloride***	<RL	<RL	0.0
1,3- DICHLOROBENZENE***	<RL	<RL	0.0
1,4- DICHLOROBENZENE***	105	107	1.9
1,2-DICHLOROBENZENE***	<RL	<RL	0.0
1,2,4 TRICHLOROBENZENE***	<RL	<RL	0.0
Hexachlorobutadiene***	<RL	<RL	0.0
System Monitoring Compounds			
BFB-Surrogate Std % Recovery	97%	97%	0.1

RL - Reporting Limit


Sucha S. Parmar, PhD
Technical Director



Date _____

Time:

D
Field Data Sheets

CONTINUOUS EMISSION MONITORING SUMMARY DATA SHEET

Facility: REDWOOD LANDFILL Test #: 1-2-3 Date: 5-14-08
 Location: FLARE A-51 Personnel: GW AH Leak Check: ☒
 Stratification Check: ☒

Parameter	O ₂	CO ₂	NO _x	CO	THC	CH ₄	SO ₂		Unit Description/Serial #:
Analyzer	755R	PIR 2000	42 C	48C	RS-55	RS-55			136" I.D.
Range	25	15	25	25	100				Operating Conditions:
Span Value(s)	20.57	12.64	22.5	22.7	84.6				1450
Span Value(s)									Fuel:
Span Value(s)									1600
zero	0	0	0	0.25	-1				NOTES:
hi	20.88	12.68	22.5	21.25	84.3				
mid									
low									
ext zero									
ext cal									
1 0710	13.75	6.38	16.62	5.0	5				pt 1+2 west.
2+4	13.75	6.38	16.62	5.0	5				pt 3+4
5+8	14.0	6.0	14.0	5.0	25				pt 5+6
9+16	14.0	6.0	14.0	5.0	7.5				pt 7+8
C732	16.75	3.68	7.7	6.5	14				← part change
	16.75	3.68	7.7	6.5	-	24			
	16.75	3.68	7.6	6.5	-	24			
0758	16.75	3.68	7.6	6.5	-	12			
AVG	(15.31)	(4.94)	(11.48)	(5.75)	11.3	≤11.3			THC = CH ₄
zero	0.25	0	0	0.2	0				
cal	20.62	12.75	22.25	21.1	84.2				
2 0808	16.38	3.75	9.0	5.75	17.5				
	16.38	3.75	9.0	5.75	17.5				
	17.13	3.3	6.1	5.75	55				
	17.13	3.3	6.1	5.75	55				
	14.5	5.55	14.5	5.5		7.5			← part change
	14.5	5.55	14.5	5.5		40			
	14.88	6.3	13.1	5.5		6.5			
0846	14.88	6.3	13.1	5.5		6.5			
AVG	(15.7)	(4.75)	(10.68)	(5.63)	36.25	15.1			
zero	0.47	0	0	0.25	2.0				
cal	20.38	12.83	22.0	20.9	85.0				
3 0909	13.5	6.66	15.0	3.4	10				
	13.5	6.66	15.0	3.4	10				
	13.5	6.66	15.0	3.4	5.5				
	13.5	6.66	15.0	3.4	5.5				
	17.0	2.7	6.75	1.6		6			← part change
	17.0	2.7	6.75	1.6		6			
	17.0	3.6	7.5	5.5		10			
0947	17.0	3.6	7.5	5.5		10			
AVG	(15.25)	(4.91)	(11.06)	(3.4)	7.75	≤7.75			
zero	0.47	0	0	0.2	0				
cal	20.15	12.90	21.63	20.63	84.5				

E
Strip Charts

part Δ

low frequency shut down

18 10-21.1
2 20 20 22.25
8 20 20 22.25

probe too near port?

low temp surf down

Handwritten signature: *[Signature]*

part change

1st Port 7 vessels
8 pt x 2 min / pt

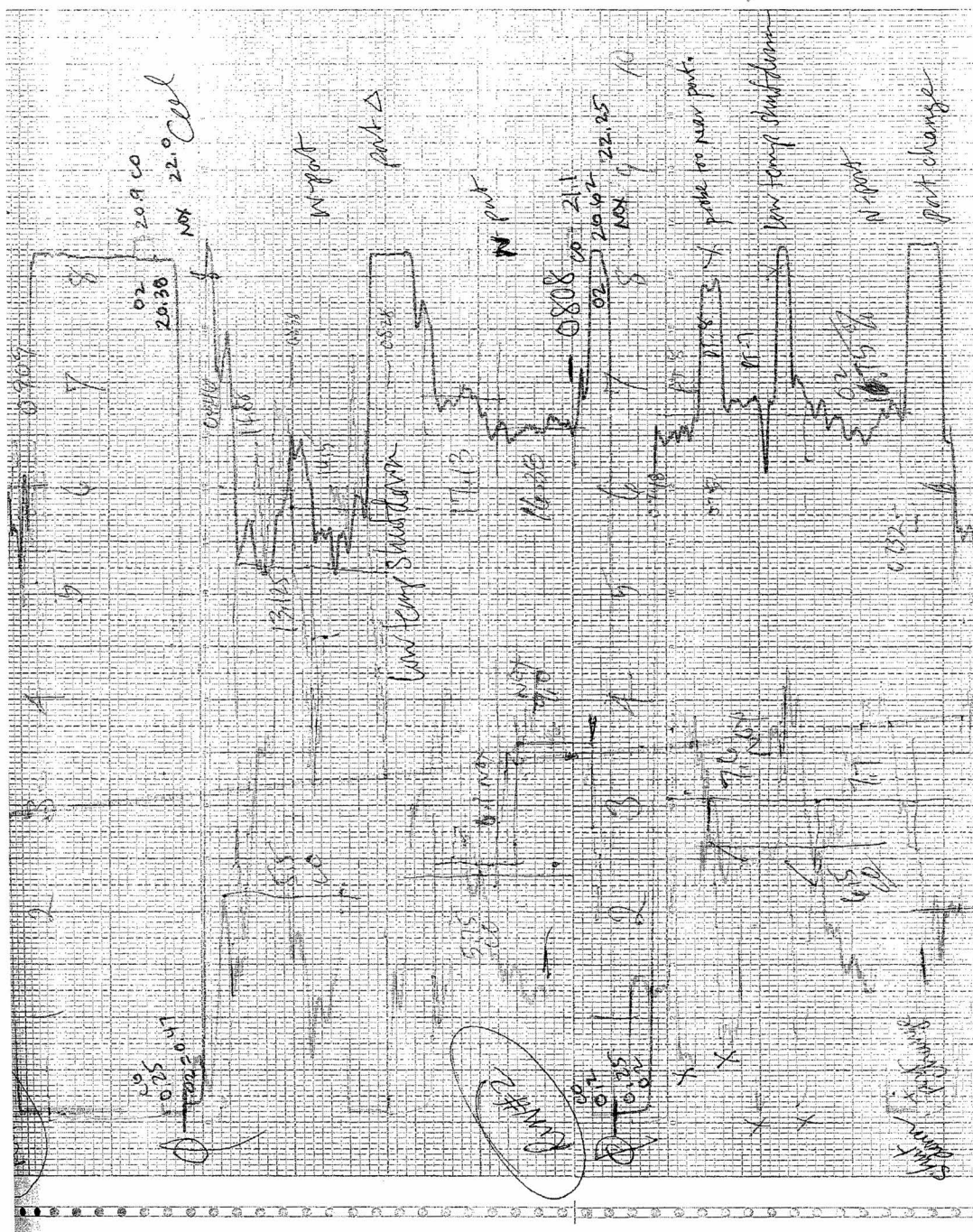
$$\begin{array}{r} \text{cal } 205 \\ \text{cal } 60 \overline{) 205} \\ \hline 145 \\ 144 \overline{) 145} \\ \hline 1 \\ 1 \overline{) 1} \\ \hline 0 \end{array}$$

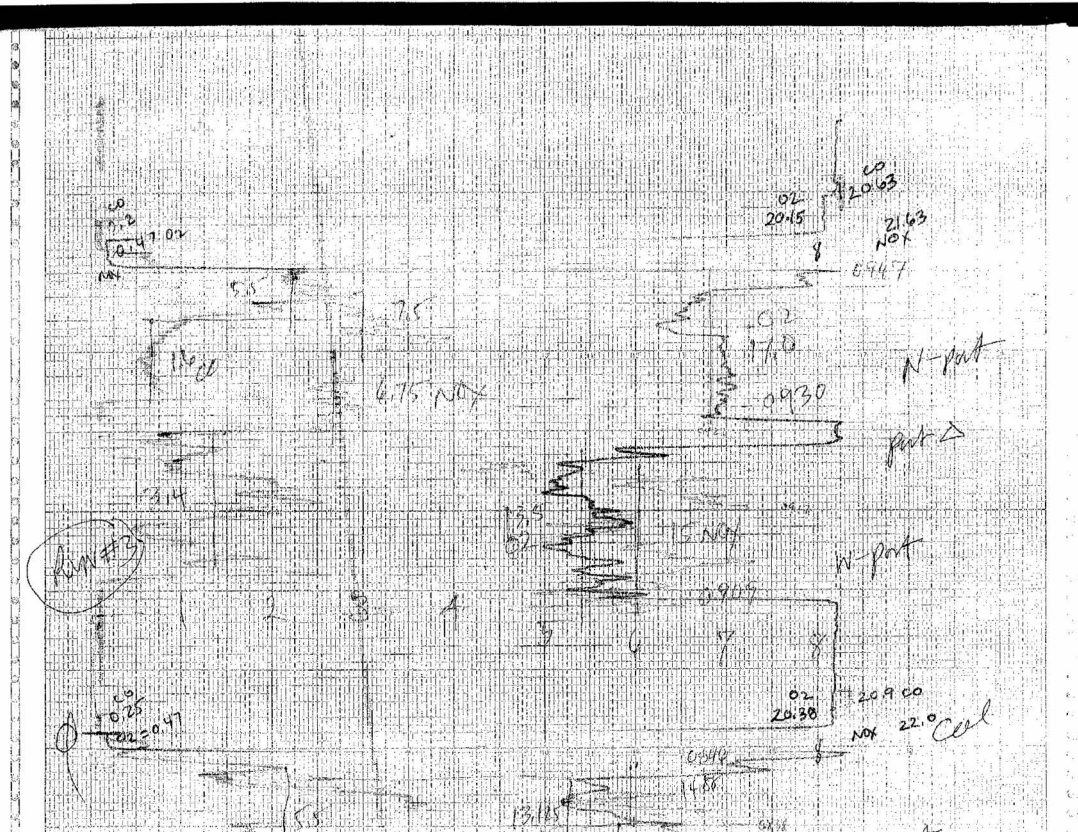
8 9 10
C-1450 SP with 10
C-1600 SCFM

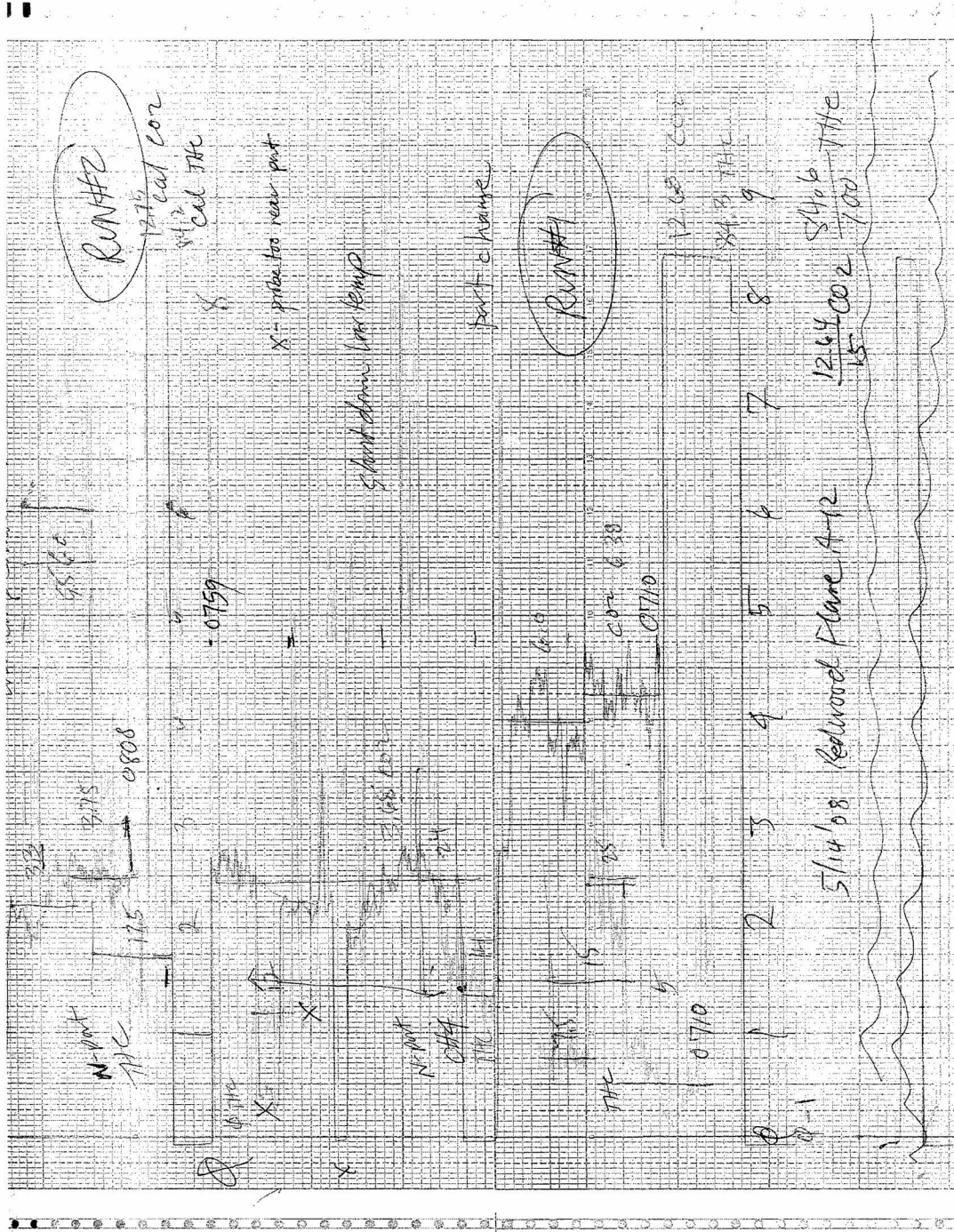
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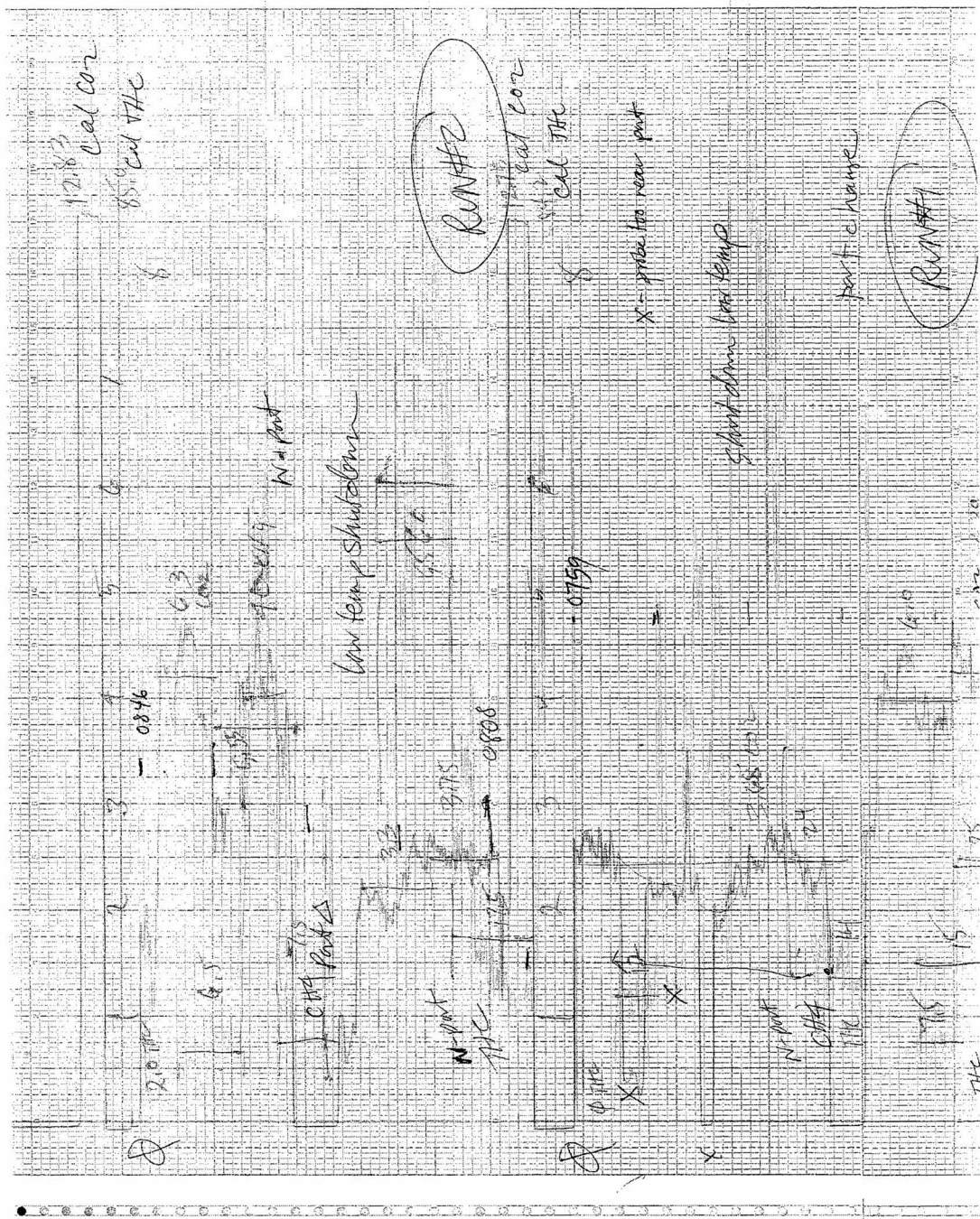
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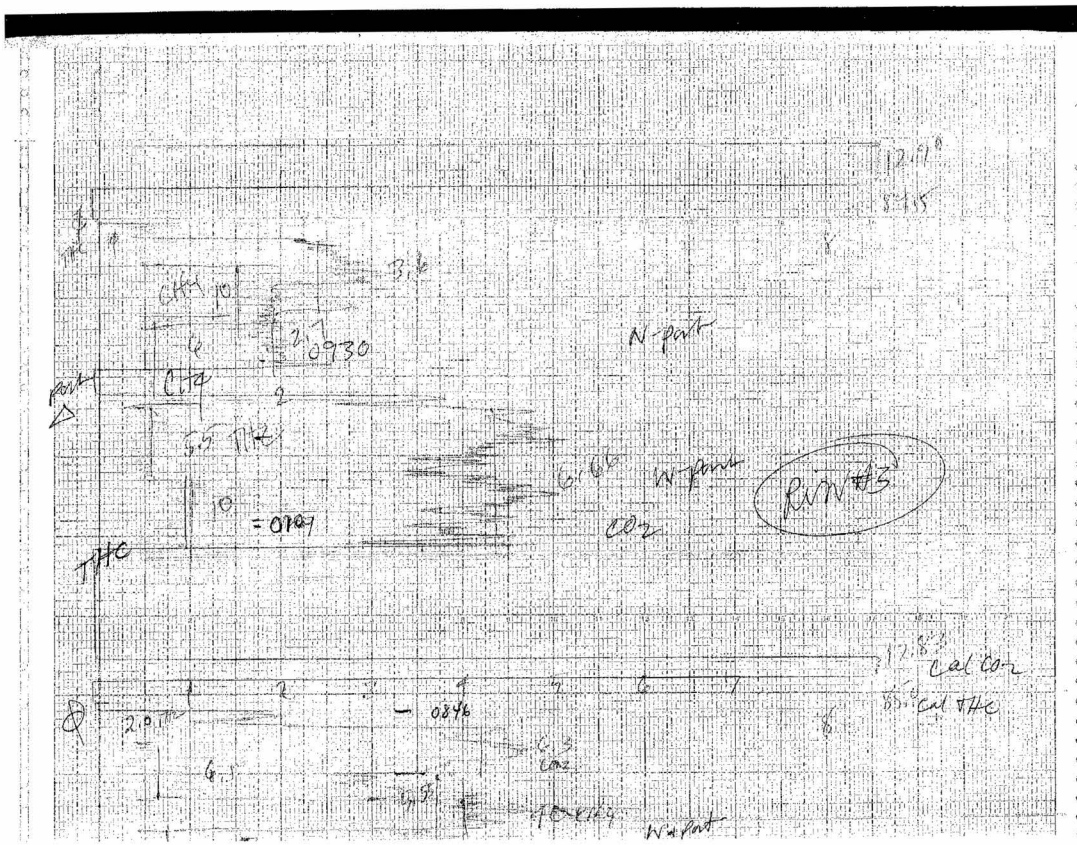
520











F
Process Information

			CH02		CH03				
			Temp		Flow				
Date	Time	Real Time	DEG. F		SCFM				
			MIN	MAX	MIN	MAX			
2008/05/14	06:26:00	07:10:00	1631	1678	2546	2658			
2008/05/14	06:28:00	07:12:00	1620	1680	2523	2634			
2008/05/14	06:30:00	07:14:00	1601	1689	2550	2653			
2008/05/14	06:32:00	07:16:00	1430	1639	2525	2641			
2008/05/14	06:34:00	07:18:00	1429	1481	2543	2638			
2008/05/14	06:36:00	07:20:00	1406	1490	2544	2659			
2008/05/14	low temp shutdown								
2008/05/14	low temp shutdown								
2008/05/14	06:42:00	07:26:00	1383	1600	2584	2858			
2008/05/14	06:44:00	07:28:00	1432	1480	2553	2706			
2008/05/14	06:46:00	07:30:00	1424	1470	2544	2676			
2008/05/14	06:48:00	07:32:00	1427	1463	2514	2682			
2008/05/14	06:50:00	07:34:00	1428	1471	2527	2665			
2008/05/14	06:52:00	07:36:00	1434	1455	2533	2657			
2008/05/14	06:54:00	07:38:00	1443	1466	2546	2657			
2008/05/14	06:56:00	07:40:00	1428	1484	2537	2668			
2008/05/14	06:58:00	07:42:00	1449	1481	2567	2658			
2008/05/14	07:00:00	07:44:00	1418	1455	2540	2670			
2008/05/14	07:02:00	07:46:00	1439	1472	2521	2658			
2008/05/14	07:04:00	07:48:00	1425	1453	2547	2644			
2008/05/14	07:06:00	07:50:00	1441	1472	2537	2664			
2008/05/14	low temp shutdown								
2008/05/14	low temp shutdown								
2008/05/14	07:12:00	07:56:00	1494	1526	2583	2753			
2008/05/14	07:14:00	07:58:00	1454	1502	2570	2685			
Run 1			AVG	1459	1519	1489	2544	2675	2610

Date	Time	Real Time	CH02		CH03	
			Temp		Flow	
			DEG. F		SCFM	
			MIN	MAX	MIN	MAX
2008/05/14	07:24:00	08:08:00	1417	1435	2511	2662
2008/05/14	07:26:00	08:10:00	1418	1446	2553	2659
2008/05/14	07:28:00	08:12:00	1442	1486	2521	2644
2008/05/14	07:30:00	08:14:00	1456	1487	2511	2663
2008/05/14	07:32:00	08:16:00	1436	1471	2512	2655
2008/05/14	07:34:00	08:18:00	1447	1464	2503	2656
2008/05/14	07:36:00	08:20:00	1421	1459	2528	2659
2008/05/14	07:38:00	08:22:00	1435	1490	2547	2643
2008/05/14	07:40:00	08:24:00	1409	1462	2529	2657
2008/05/14	07:42:00	08:26:00	1404	1471	2546	2646
2008/05/14	07:44:00	08:28:00	1434	1501	2505	2659
2008/05/14	07:46:00	08:30:00	1415	1481	2508	2658
2008/05/14	07:48:00	08:32:00	1422	1503	2539	2639
2008/05/14	low temp shutdown					
2008/05/14	low temp shutdown					
2008/05/14	low temp shutdown					
2008/05/14	07:56:00	08:40:00	1410	1440	2557	2693
2008/05/14	07:58:00	08:42:00	1412	1465	2590	2667
2008/05/14	08:00:00	08:44:00	1432	1477	2521	2664
2008/05/14	08:02:00	08:46:00	1426	1471	2556	2661
Run 2			AVG	1426	1471	1448
					2532	2658
						2595

			CH02		CH03			
			Temp		Flow			
Date	Time	Real Time	DEG. F		SCFM			
			MIN	MAX	MIN	MAX		
2008/05/14	08:24:00	09:08:00	1417	1472	2511	2627		
2008/05/14	08:26:00	09:10:00	1425	1455	2493	2639		
2008/05/14	08:28:00	09:12:00	1404	1465	2486	2646		
2008/05/14	08:30:00	09:14:00	1414	1462	2532	2643		
2008/05/14	low temp shutdown							
2008/05/14	low temp shutdown							
2008/05/14	08:36:00	09:20:00	1415	1473	2535	2688		
2008/05/14	08:38:00	09:22:00	1411	1462	2561	2652		
2008/05/14	08:40:00	09:24:00	1433	1461	2511	2658		
2008/05/14	08:42:00	09:26:00	1429	1461	2541	2625		
2008/05/14	08:44:00	09:28:00	1418	1459	2499	2646		
2008/05/14	08:46:00	09:30:00	1433	1478	2508	2621		
2008/05/14	08:48:00	09:32:00	1416	1454	2470	2630		
2008/05/14	08:50:00	09:34:00	1423	1508	2485	2646		
2008/05/14	08:52:00	09:36:00	1438	1501	2497	2637		
2008/05/14	08:54:00	09:38:00	1442	1472	2466	2622		
2008/05/14	08:56:00	09:40:00	1418	1482	2487	2633		
2008/05/14	08:58:00	09:42:00	1401	1482	2521	2599		
2008/05/14	low temp shutdown							
	Run 3	AVG	1421	1472	1446	2506	2638	2572

6
Calibration Certifications & QC Records



10 copies
3/08

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (323) 585-0582

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER MARK FOR BLUE SKY

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON DIOXIDE GMIS	vs.SRM#2745	SA 18273	15.05 %
OXYGEN GMIS	vs.SRM#2659	CC 95752	20.97 %

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	CARBON DIOXIDE GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat 5E S/N A12-730
ANALYTICAL PRINCIPLE	NDIR		LAST CALIBRATION DATE 01/07/08
FIRST ANALYSIS DATE	01/09/08		SECOND ANALYSIS DATE
Z 0.00 R 15.04 C 12.64 CONC. 12.64 Z R C CONC.			
R 15.04 Z 0.00 C 12.64 CONC. 12.64 R Z C CONC.			
Z 0.00 C 12.64 R 15.04 CONC. 12.64 Z C R CONC.			
U/M %	MEAN TEST ASSAY 12.64	U/M %	MEAN TEST ASSAY
2. COMPONENT	OXYGEN GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat 5E S/N A12-839
ANALYTICAL PRINCIPLE	Paramagnetic		LAST CALIBRATION DATE 01/07/08
FIRST ANALYSIS DATE	01/09/08		SECOND ANALYSIS DATE
Z 0.0 R 21.0 C 20.6 CONC. 20.57 Z R C CONC.			
R 21.0 Z 0.0 C 20.6 CONC. 20.57 R Z C CONC.			
Z 0.0 C 20.6 R 21.0 CONC. 20.57 Z C R CONC.			
U/M %	MEAN TEST ASSAY 20.57	U/M %	MEAN TEST ASSAY

Values not valid below 150 psig
O2 concentration is corrected for CO2 interference.

THIS CYLINDER NO.	CC 149153	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-600/R97/121	CARBON DIOXIDE	12.64 %
OF TRACEABILITY PROTOCOL NO.	Rev. 9/97	OXYGEN	20.57 %
PROCEDURE	G1	NITROGEN	BALANCE
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE		
CYLINDER PRESSURE	2000 PSIG		
CERTIFICATION DATE	01/09/08		
EXPIRATION DATE	01/09/11 TERM 36 MONTHS		

ANALYZED BY

PETER SU

CERTIFIED BY

HELENA TRAN

IMPORTANT

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Distribution, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.



in service
2/11/08

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (323) 585-0582

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BLUE SKY

P.O NUMBER

REFERENCE STANDARD

COMPONENT
PROPANE QMIS

NIST SRM NO.
vs. SRM#1657

CYLINDER NO.
SA 9789

CONCENTRATION
31.9 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	PROPANE QMIS	ANALYZER MAKE-MODEL-S/N	HORIBA, PID-510, 851135122
ANALYTICAL PRINCIPLE	Flame Ionization Detector	LAST CALIBRATION DATE	12/05/07
FIRST ANALYSIS DATE	12/07/07	SECOND ANALYSIS DATE	
Z 0	R 86.7	C 76.7	CONC. 28.2
R 86.7	Z 0	C 76.7	CONC. 28.2
Z 0	C 76.7	R 86.7	CONC. 28.2
U/M ppm	MEAN TEST ASSAY	28.2	U/M ppm
			MEAN TEST ASSAY

Values not valid below 150 psig

THIS CYLINDER NO.	CC 112234	CERTIFIED CONCENTRATION
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-600/R97/121	PROPANE 28.2 ppm
OF TRACEABILITY PROTOCOL NO.	Rev. 9/97	AIR BALANCE
PROCEDURE	G1	
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE	
CYLINDER PRESSURE	2000 PSIG	
CERTIFICATION DATE	12/07/07	
EXPIRATION DATE	12/07/10	TERM 36 MONTHS

C₁ 84.6

ANALYZED BY

HELENA TRAN

CERTIFIED BY

HENRY ROYNS

IMPORTANT

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Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BLUE SKY

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE GMIS	vs. SRM#2613	SGAL 1090	24.4 ppm
NITRIC OXIDE GMIS	vs SRM#2629a	CC 149417	24.7 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	CARBON MONOXIDE GMIS	ANALYZER MAKE-MODEL-S/N	HORIBA, VIA-510, S/N 576876015
ANALYTICAL PRINCIPLE	NDIR		LAST CALIBRATION DATE 05/02/07
FIRST ANALYSIS DATE	05/18/07		SECOND ANALYSIS DATE 05/29/07
Z 0.0 R 24.4 C 22.6 CONC. 22.6 Z 0.0 R 24.3 C 22.4 CONC. 22.8			
R 24.4 Z 0.0 C 22.6 CONC. 22.6 R 24.3 Z 0.0 C 22.4 CONC. 22.8			
Z 0.0 C 22.7 R 24.4 CONC. 22.7 Z 0.0 C 22.4 R 24.3 CONC. 22.8			
U/M ppm	MEAN TEST ASSAY 22.6	U/M ppm	MEAN TEST ASSAY 22.3

2. COMPONENT	NITRIC OXIDE GMIS	ANALYZER MAKE-MODEL-S/N	Thermo Env. 42C S/N 0518112467
ANALYTICAL PRINCIPLE	Chemiluminescence		LAST CALIBRATION DATE 05/02/07
FIRST ANALYSIS DATE	05/18/07		SECOND ANALYSIS DATE 05/29/07
Z 0.0 R 24.5 C 22.1 CONC. 22.3 Z 0.0 R 24.5 C 22.2 CONC. 22.4			
R 24.5 Z 0.0 C 22.1 CONC. 22.3 R 24.5 Z 0.0 C 22.1 CONC. 22.3			
Z 0.0 C 22.1 R 24.5 CONC. 22.3 Z 0.0 C 22.1 R 24.5 CONC. 22.3			
U/M ppm	MEAN TEST ASSAY 22.3	U/M ppm	MEAN TEST ASSAY 22.3

Values not valid below 150 psig.
NOx value for reference use only.

THIS CYLINDER NO.	CC 198454	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-600/R97/121	CARBON MONOXIDE	22.7 ppm
OF TRACEABILITY PROTOCOL NO.	Rev. 9/97	NITRIC OXIDE	22.3 ppm
PROCEDURE	G1	NITROGEN	BALANCE
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE	NOx	22.5 ppm
CYLINDER PRESSURE	2000 PSIG		
CERTIFICATION DATE	05/29/07		
EXPIRATION DATE	05/29/09 TERM 24 MONTHS		

ANALYZED BY

Henry Koung

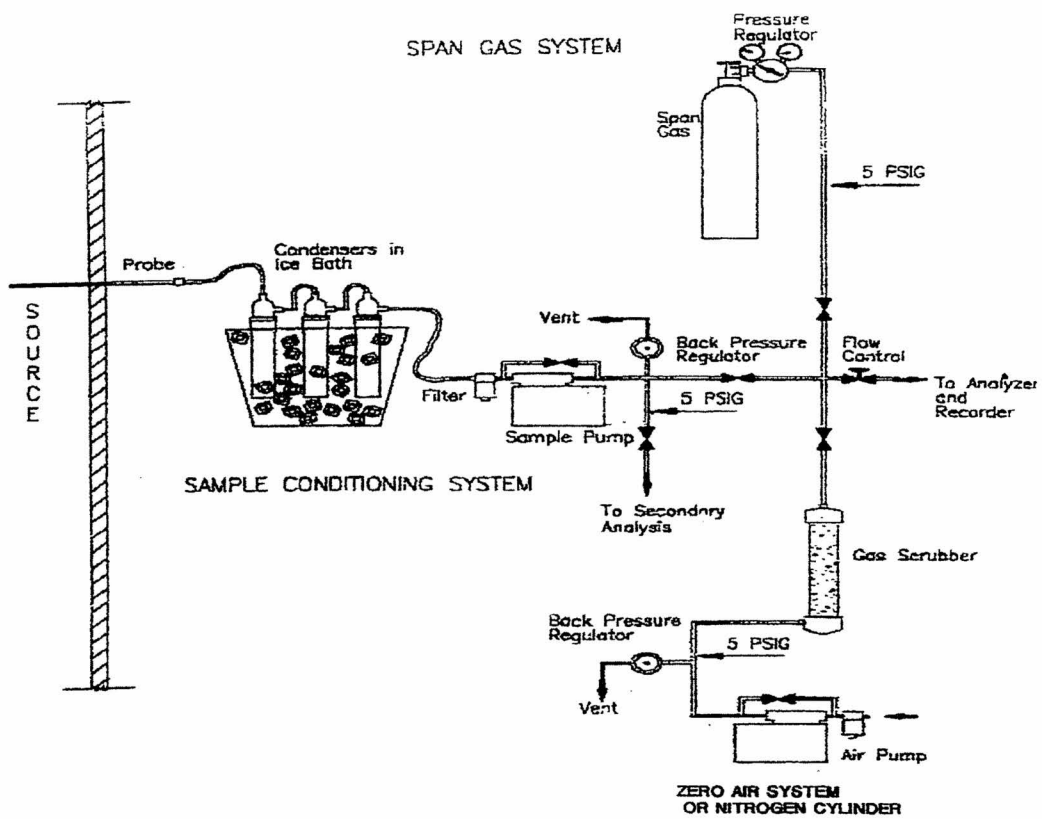
CERTIFIED BY

PHIL KIM

IMPORTANT

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H Sample Train Configuration and Stack Diagrams



BAAQMD ST-5 (CO₂)
 BAAQMD ST-6 (CO)
 BAAQMD ST-7 (THC by FID)
 BAAQMD ST-13A (NO_x)
 BAAQMD ST-14 (O₂)
 BAAQMD ST-19A (SO₂)

I
Related Correspondence (Source Test Plan)



Blue Sky Environmental, LLC

624 San Gabriel Avenue
Albany, California 94706

Pb/Fax (510) 525 1261

Cell (510) 508 3469

blueskyenvironmental@yahoo.com

April 30, 2008

Attn.: Tim Underwood
Source Test Division
Bay Area Air Quality Management District
Compliance and Enforcement Division
939 Ellis Street
San Francisco, CA 94109

Re: Source Test Protocol for compliance emissions testing of the Enclosed Landfill Gas Flare (A-51) at Redwood Landfill Inc., located at 8950 Redwood Highway, Novato, California. BAAQMD Facility #A1179.

Dear Mr. Underwood,

Blue Sky Environmental, LLC is pleased to present this Source Test Plan for the Enclosed Landfill Gas Flare (A-51) at the Redwood Landfill in Novato. Blue Sky Environmental, LLC is approved by the California Air Resources Board as an independent contractor to conduct compliance emission testing. This Source Test Protocol will include the following:

BAAQMD Source # A-51 Flare Condition 19867	Test Parameters/Limits
Compliance Test	NMOC, NO _x , CO, O ₂ in the flare stack gas (Part 30d) NO _x (15 ppmv @15% O ₂) or 0.06 lbs/MMBtu (Part 25 & 30f) A-51 - CO (82 ppmv @15% O ₂) or (0.20 lbs/MMBtu) (Part 26 & 30f) NMOC 98% DE or 30 ppm as CH ₄ @3% O ₂ (Part 30e) 3 LFG samples for CO ₂ , N ₂ , O ₂ , THC, NMOC & CH ₄ in the landfill gas (Part 30b) One LFG sample for landfill gas characterization (Part 31a & 18b) One LFG sample for TRS (Part 31a) LFG Flow rate (Part 30a) & stack gas flow rate (Part 30c) Flare Temperature (Part 30g)

Testing is currently scheduled for May 14th, 2008, with a 7:00 am arrival time. If you have any questions, please contact Guy Worthington at 510 525 1261, or 510 508 3469.

- At the flare exhaust, triplicate thirty-minute tests will be performed with the Condensate On and will be repeated with the Condensate Off. Testing will use BAAQMD methods for NO_x (ST-13A), CO (ST-6), TNMHC's (ST-7-FID), CO₂ (ST-5) and O₂ (ST-14). Testing is designed to determine compliance with the following BAAQMD Permit and Reg 8 Rule 34 conditions listed in the Table above.
- Integrated Tedlar bag samples of the Landfill Gas (LFG) will be collected during each test run, and will be analyzed for HHV, CO₂, N₂, O₂, NMOC and CH₄, using ASTM 1945 (EPA 18 & 3C) & EPA 25C. A single sample of LFG will be analyzed for TRS by ASTM 5504. The samples will be analyzed within 72 hours.

- The facility fuel flow meter will be recorded and a fuel analysis will be performed to calculate outlet volumetric flow rate using EPA Method 19. The facility is required to have accurate, operating Flare temperature recording and LFG gas flow monitors. If necessary, the fuel flow may be measured by BAAQMD Methods 17 & 18. The fuel moisture content will be determined by wet-bulb/dry-bulb measurement.
- Three hard copies of the compliance test report and one electronic copy will be submitted to the client upon completion of the test program and will include analytical test results. The report will include a test description and tables presenting concentrations (ppm), emission rates (lbs/hr) for all sampling parameters. All supporting documents (strip charts, field data sheets, calibrations, calculations, etc.) will also be included. The final report is due to the BAAQMD 60 days after testing has been completed.

Authority To Construct

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Final

MAJOR FACILITY REVIEW PERMIT

Issued To:
Redwood Landfill, Inc.
Facility #A1179

Facility Address:
8950 Redwood Highway
Novato, CA 94948

Mailing Address:
P. O. Box 793
Novato, CA 94948

Responsible Official
Jessica Jones
District Manager
415-892-2851

Facility Contact
Alisha McCutcheon
Environmental Protection Manager
415-892-2851

Type of Facility:	Landfill for Solid Waste Disposal	BAAQMD Engineering Division Contact:
Primary SIC:	4953	Carol S. Allen
Product:	Refuse and Sludge Disposal	

ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Signed by Jeff McKay for Jack P. Broadbent
Jack P. Broadbent, Executive Officer/Air Pollution Control Officer

October 24, 2007
Date

Facility Name: Redwood Landfill, Inc.
Permit for Facility #: A1179

II. Equipment

Table II - B
Abatement Devices

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
A-18	Water Sprays	S-5, S-34, S-35, S-37, S-39, S-41, and S-42	BAAQMD Regulation 6-301	None	Ringelmann No. 1
A-50	Landfill Gas Flare, Power Strategies, EV-4000 120 MM BTU/hour	S-5	BAAQMD 8-34-301.3, see also Table IV-B	Minimum combustion zone temperature of 1475 °F, see also Table VII-B	98% destruction of NMOC or < 30 ppmv of NMOC, as CH ₄ , at 3% O ₂ , dry
A-51	Landfill Gas Flare, Perennial Energy, Inc., FL-144-38-E, 90 MM BTU/hour	S-5	BAAQMD 8-34-301.3, see also Table IV-B	Minimum combustion zone temperature of 1422 °F, see also Table VII-B	98% destruction of NMOC or < 30 ppmv of NMOC, as CH ₄ , at 3% O ₂ , dry

VI. Permit Conditions

Condition # 19867

FOR: S-5 REDWOOD LANDFILL WITH GAS COLLECTION SYSTEM; A-18 WATER
SPRAYS; A-50 LANDFILL GAS FLARE; AND A-51 LANDFILL GAS FLARE

- b. The Permit Holder has been issued an Authority to Construct for the landfill gas collection system components listed below. Specific well and collector locations, depths, and lengths of associated piping are as described in detail in Permit Application # 13027.

	Minimum	Maximum
Install New Vertical Wells:	0	30
Decommission Vertical Wells:	0	8
Install New Horizontal Collectors	0	9
Decommission Horizontal Collectors	0	4
Replace Vertical Wells *	0	15

* one-for-one well replacement at new optimal locations

Wells installed or shutdown pursuant to subpart b shall be added to or removed from subpart a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415. The Permit Holder shall maintain records of the decommissioning date for each well that is shut down and the initial operation date for each new well.

(Basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305, and 2-6-413)

18. If a gas characterization test indicates that this site's landfill gas contains organic compounds in excess of any of the concentrations listed in Parts 18a or 18b below, then the Permit Holder shall submit an application for a Change of Permit Conditions, within no later than 30 days from receipt of the test results.

- a. Total Non-Methane Organic Compounds: 750 ppmv
(calculated as hexane equivalent)
(Basis: Cumulative Increase)

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*b. For toxic air contaminants (TACs):

<u>Compound</u>	<u>Concentration</u>
Acrylonitrile	280 ppbv
Benzene	340 ppbv
Carbon Tetrachloride	70 ppbv
Chloroform	70 ppbv
1,4 Dichlorobenzene	400 ppbv
1,1 Dichloroethane	150 ppbv
Ethylene Dibromide	70 ppbv
Ethylene Dichloride	70 ppbv
Methylene Chloride	320 ppbv
Perchloroethylene	450 ppbv
1,1,2,2 Tetrachloroethane	70 ppbv
Trichloroethylene	250 ppbv
Vinyl Chloride	880 ppbv

(Basis: Toxic Risk Management Policy)

c. The concentration of total reduced sulfur compounds (TRS) in collected landfill gas shall not exceed a peak of 1300 ppmv (calculated as H₂S) and shall not exceed an annual average of 425 ppmv (calculated as H₂S). The peak and annual average TRS concentrations shall be measured and calculated in accordance with Parts 31a and 31b. (Basis: Cumulative Increase, RACT, and Regulation 9-1-302)

19. The A-50 and A-51 Landfill Gas Flares shall be fired on landfill gas. (Basis: RACT and Regulation 2-2-112)

20. The throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-50 Landfill Gas Flare shall not exceed 630,720,000 scf during any consecutive 12-month period and shall not exceed 1,728,000 scf during any one day. The throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 1,576,800,000 scf during any consecutive 12-month period and shall not exceed 4,320,000 scf during any one day. In order to demonstrate compliance with this condition, the A-50 and A-51 Flares shall be equipped with a one or more properly operating continuous gas flow meters. (Basis: Cumulative Increase, 40 CFR 60.756(b)(2)(i))

21. [deleted]

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22. The temperature in the combustion zone of each flare shall be maintained at the minimum temperature listed below, averaged over any 3-hour period. In order to demonstrate compliance with this condition, A-50 and A-51 shall each be equipped with a continuous temperature monitor and recorder. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise these temperature limits, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415, based on the following criteria. The minimum combustion zone temperature for the flare shall be equal to the average combustion zone temperature determined during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F. (Basis: Regulations 2-5-302, 8-34-301.3 and 8-34-501.3, and 40 CFR 60.756(b)(1))
 - a. The minimum combustion zone temperature for A-50 is 1475 degrees F, averaged over any 3-hour period.
 - b. The minimum combustion zone temperature for A-51 is 1400 degrees F, averaged over any 3-hour period.
23. The A-50 and A-51 Landfill Gas Flares shall comply with the NMOC emission limit in Regulation 8-34-301.3. (Basis: Cumulative Increase, 8-34-301.3, and 40 CFR 60.752(b)(2)(iii)(B))
- *24. The A-50 and A-51 Landfill Gas Flares shall each achieve a minimum destruction efficiency of 83% by weight for any EPA Hazardous Air Pollutants or any District toxic compounds that are determined to be present in the landfill gas. (Basis: Regulation 2-5-302)
25. Nitrogen oxides (NO_x) emissions from each enclosed flare (A-50 and A-51) shall not exceed 0.06 pounds of NO_x, calculated as NO₂, per million BTU. Compliance with this emission limit may be demonstrated by not exceeding the following flue gas concentration limit: 15 ppmv of NO_x, corrected to 15% oxygen, dry basis. (Basis: RACT and Offsets)

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26. Carbon monoxide (CO) emissions from A-50 shall not exceed 0.30 pounds of CO per million BTU. Carbon monoxide (CO) emissions from A-51 shall not exceed 0.20 pounds of CO per million BTU. Compliance with these emission limits may be demonstrated by not exceeding the following flue gas concentration limits:
A-50: 123 ppmv of CO, corrected to 15% oxygen, dry basis or
A-51: 82 ppmv of CO, corrected to 15% oxygen, dry basis.
(Basis: RACT and Cumulative Increase)
27. [deleted]
28. [deleted]
29. The Permit Holder shall maintain records of all planned and unanticipated shut downs of the A-50 and A-51 Flares and of any temperature excursions. The records shall include the date, time, duration, and reason for any shut down or excursion. Any unanticipated shut downs or temperature excursions shall be reported to the Enforcement Division immediately. All inspection and maintenance records, records of shut downs and excursions, gas flow records, temperature records, analytical results, source test results, and any other records required to demonstrate compliance with the above permit conditions, Regulation 8 Rule 34, or 40 CFR Part 60 Subpart WWW shall be retained on site for a minimum of five years and shall be made available to District staff upon request.
(Basis: 2-6-501, 8-34-501, 40 CFR 60.758)
30. In order to demonstrate compliance with Parts 23, 25, and 26 above, Regulation 8, Rule 34, Sections 301.3 and 412, and 40 CFR 60.8 and 60.752(b)(2)(iii)(B), the Permit Holder shall ensure that a District approved source test is conducted annually on the A-50 Landfill Gas Flare and the A-51 Landfill Gas Flare. Each annual source test shall determine the following:
 - a. landfill gas flow rate to the flare (dry basis);
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), total hydrocarbons (THC), methane (CH₄), and total non-methane organic compounds (NMOC) in the landfill gas;
 - c. stack gas flow rate from the flare (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, NMOC, and O₂ in the flare stack gas;
 - e. NMOC destruction efficiency achieved by the flare;

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- f. NO_x and CO emission rates from the flare in units of pounds per MM BTU,
 - g. average combustion zone temperature in the flare during the test period. The first source test for A-51 shall be conducted no later than 60 days after the initial start-up date for A-51. Each annual source test shall be conducted no earlier than 9 months and no later than 12 months after the previous annual source test. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: Cumulative Increase, Toxic Risk Management Policy, RACT, Offsets, Regulations 8-34-301.3, 8-34-412, 40 CFR 60.8 and 40 CFR 60.752(b)(2)(iii)(B))
31. Landfill Gas Testing:
- a. The Permit Holder shall conduct a characterization of the landfill gas on a quarterly basis with one test concurrent with one of the annual source tests required by Part 30 above. The landfill gas sample shall be drawn from the main landfill gas header. Each quarterly landfill gas sample shall be analyzed for the sulfur compounds listed below. Once per year (concurrent with a Part 30 annual source test) the landfill gas shall be analyzed for all the organic and sulfur compounds listed below. All concentrations shall be reported on a dry basis. The laboratory analysis report for the annual organic and sulfur compound gas characterization test shall be included with the Part 30 source test report and shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: Toxic Risk Management Policy and Regulations 8-34-412 and 9-1-302)

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<u>Organic Compounds</u>	<u>Organic Compounds</u>	<u>Sulfur Compounds</u>
acrylonitrile	ethylene dibromide	carbon disulfide
benzene	fluorotrichloromethane	carbonyl sulfide
carbon tetrachloride	hexane	dimethyl sulfide
chlorobenzene	isopropyl alcohol	ethyl mercaptan
chlorodifluoromethane	methyl ethyl ketone	hydrogen sulfide
chloroethane	methylene chloride	methyl mercaptan
chloroform	perchloroethylene	
1,1 dichloroethane	toluene	
1,1 dichloroethene	1,1,1 trichloroethane	
1,2 dichloroethane	1,1,2,2 tetrachloroethane	
1,4 dichlorobenzene	trichloroethylene	
dichlorodifluoromethane	vinyl chloride	
dichlorofluoromethane	xylene	
ethylbenzene		

- b. Once per week, beginning no later than March 31, 2005, the Permit Holder shall analyze the landfill gas for hydrogen sulfide (H₂S) concentration using a Draeger tube to further demonstrate compliance with Part 18c and Regulation 9-1-302. The landfill gas sample shall be drawn from the main landfill gas header. The Permit Holder shall follow the manufacturer's procedures for using the Draeger tube and interpreting the results. The total reduced sulfur (TRS) content of the landfill gas shall be calculated using the average ratio of TRS/H₂S for this site according to the following equation: $TRS = 1.015 * H_2S \text{ measured by Draeger tube}$. The Permit Holder shall maintain records of all Draeger tube test dates and test results and shall summarize the average H₂S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. On a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit in Part 18c. (Basis: Cumulative Increase, RACT, and Regulation 9-1-302).

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32. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through April 30, 2004. This first increment report shall be submitted by May 31, 2004. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F of the MFR Permit for this site. A single report may be submitted to satisfy the requirements of Section I.F, Regulation 8-34-411, and 40 CFR Part 63.1980(a), provided that all items required by each applicable reporting requirement are included in the single report. (Basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

